



### IT salaries headed south

Pay for noncertified IT skills, which has been consistently on the rise since mid-2004, began to decline in the last quarter of 2008, research shows. Pay for certified skills is also falling. **Page 14.**



### Mobile feds want BlackBerries

President Barack Obama isn't the only U.S. federal government employee who wants to keep his BlackBerry. **Page 16.**

# NETWORKWORLD

Maximize your return on IT ■ [www.networkworld.com](http://www.networkworld.com)

February 2, 2009 ■ Volume 26, Number 5

### Can carriers weather recession?

While Verizon and AT&T have posted solid earnings over the past year, they are unlikely to emerge from the current recession unscathed. **Page 8.**

### Disk-drive encryption gets boost

Opal standards effort addresses debate over application- vs. hardware-based encryption. **Page 10.**

### South Carolina's spectrum challenge

State plans to reprogram huge spectrum asset. **Page 14.**

### Questioning Obama's broadband stimulus plan

Columnist Scott Bradner asks whether the plan throws money at the wrong target. **Page 19.**

## Cisco, HP fight for data center

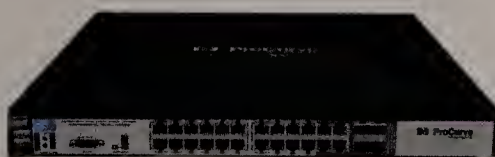
HP ramps up ProCurve switch line, while Cisco readies 'California'

BY JIM DUFFY

Cisco and HP last week armed themselves for an impending data center battle in which each company will invade the other's turf.

HP's ProCurve networking division unveiled its first switches optimized for data center duty. The company also rolled out a server module for existing switches that lets users begin integrating and consolidating switching and application processing.

Cisco, meanwhile, laid the groundwork for an imminent blade-server launch with additions to the Nexus switching line and enhancements to its Catalyst products, including software



**HP ProCurve's 6600 switch line is the company's first that is optimized for the data center.**

designed to enable the switches to control the energy consumption of attached devices. Cisco is expected to launch its "California" blade server mid-year, and the switching upgrades are designed to help support that effort.

HP's ProCurve launch also is in anticipation of the Cisco blade server, which will encroach on HP's longtime data center territory. So HP's new switches are viewed as a preemptive strike into the heart of Cisco's data center stronghold.

"This is clearly a demonstration of HP really taking ProCurve in the enterprise and leveraging other HP strengths," says Jon Oltsik, an analyst at Enterprise Strategy Group. "HP's certainly in the data center business, and for the first time ever they're talking about handling all communications, too. HP is looking at where it can succeed in the

**See Data center, page 12**

## Hot spot horrors

Think your end users are keeping corporate data secure when they connect from Wi-Fi hot spots? Be afraid. Be very afraid. **Page 24.**

**Slideshow: Top 10 laptop safety tips** How to protect yourself when using public Wi-Fi. [www.nwdocfinder.com/8529](http://www.nwdocfinder.com/8529)



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mobile app from  
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**SQL Server® 2008**



# NETWORKWORLD

## NETWORK INFRASTRUCTURE

- 10 Disk-drive encryption gains ground.
- 10 Venture investments plummet for network start-ups.
- 14 IT pay takes a hit.
- 18 VMOps aims to ease cloud setups.
- 18 With economic slump, concerns rise over data theft.
- 34 **Opinion BackSpin:** Mr. Gibbs, I am now in control.
- 34 **Opinion 'Net Buzz:** College student wins free-speech spat.

## APPLICATION SERVICES

- 15 Get ready for high-def voice.
- 16 Feds: We want our BlackBerries too.

## SERVICE PROVIDERS

- 8 Will carriers weather the downturn?
- 14 Wireless spectrum plan faces uphill battle.
- 19 **Opinion Scott Bradner:** Broadband stimulus: aimed at wrong target?
- 19 **Opinion Johna Till Johnson:** The tangled web of universal broadband.

## TECH UPDATE

- 20 Seven security industry secrets.
- 22 **Mark Gibbs:** TiddlyWiki is amazing, fantastic!

## COOLTOOLS



■ **Altec Lansing's Octiv Air** lets users separate the location of their iPod from the speaker portion. See Cool Tools, page 22.

22 **Keith Shaw:** Octiv Air an impressive iPod streamer

## NETWORKWORLD.COM

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## GOODBADUGLY

### A more flexible Gmail

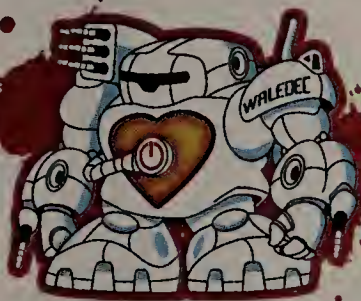
Google has made available in beta an offline capability for its Gmail platform that allows business and consumer users to work with e-mail and eventually calendar items while disconnected from the network. The company said that its Gmail Labs is developing and testing offline capabilities that allow users to read, compose and archive messages while offline. New messages are sent when the user reattaches to the network.

### White House e-mail crashes

The tech-savvy Obama White House last week suffered the inconvenience and embarrassment of an e-mail crash that lasted several hours. The outage was announced during a regular briefing at which Press Secretary Robert Gibbs apologized to reporters for the administration's failure to answer e-mails.

### Heartbreaking valentine

MX Logic, Trend Micro and Panda Security are among the security vendors warning about new, Valentine's Day-themed spam schemes that attempt to trick users into installing the Waledec bot. It looks like the spammers behind last year's Storm bot up are up to their old tricks, the security companies say.

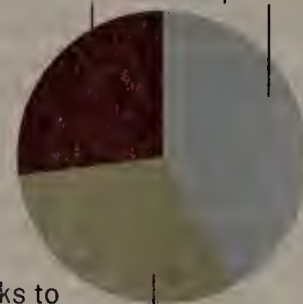


## POLL

A snapshot of how networkworld.com visitors voted on a key networking issue last week:

### Is Windows 7 what you've really always wanted in Vista?

Nope, more of the same old, same old from Microsoft. **27%**      Maybe, let's see how it works with drivers/hardware after it ships. **42%**



Yes, thanks to Windows 7 I'll stick with Windows. **31%**

Total voters for this poll: 121

Vote and discuss: [www.nwdocfinder.com/8451](http://www.nwdocfinder.com/8451)

## Hot spot horrors

Interviews with Wi-Fi users at airports and coffee shops reveal serious security lapses.

Page 24.



## Cisco's new energy management offering

Although [Energy Wise is] it's a noble and environmentally and politically correct initiative from Cisco, I think its chances of gaining support throughout the facilities-infrastructure industry are next to nil. To think that Cisco could drive the standards by which the control of all manufacturers' facilities-infrastructure equipment would conform is not realistic. I think Cisco is flattering itself to think that just because the network is pervasive that everyone will want "The Network" to control everything. ([www.nwdocfinder.com/8522](http://www.nwdocfinder.com/8522))

John Parsons  
Parsons Telecom  
Consulting

On Building Management System interface and control: Cisco didn't invent this phenomenon of IP networks being used to monitor and in some cases manage real estate. It's being done at massive scale all over China and the Middle East right now, particularly in Dubai. It's easy to forget that the facilities professionals entering the workforce today grew up with Ethernet and laptops. It's the network they already know.

On product efficiency: Cisco makes efficient products today (see the product-efficiency calculator run-through at [www.nwdocfinder.com/8523](http://www.nwdocfinder.com/8523)), as do most large IT vendors. The gains you get at the product level pale in comparison to active management and well-planned infrastructure architectures.

You can reference my blog post 'The Green IT Lion Just Got Teeth' at [www.nwdocfinder.com/8524](http://www.nwdocfinder.com/8524).

Rob Aldrich  
Senior manager and principal  
Cisco Efficiency Assurance Program  
Discuss at [www.nwdocfinder.com/8525](http://www.nwdocfinder.com/8525)

## Cat's meow on Windows 7: VHD

Re: Windows 7: the untold story of how the enterprise gets snubbed ([www.nwdocfinder.com/8526](http://www.nwdocfinder.com/8526)): Great article, but I think you missed the point on Native Virtual Hard Drive. OK, the article does say you didn't understand. Native VHD support in my opinion is a huge boost for Windows 7/2008 R2. It's reducing the number of Windows images that have to be managed. The same Win7/2008 R2 image can be used on a physical device, as well as [in] a [virtual desktop infrastructure]/hosted environment. No need for the admin to create and maintain two separate images. Second, it allow third-party tools (such as Citrix Provisioning Server) to simply add the disk, and stream or [Preboot Execution Environment] PXE boot the client. Make one update and all of your

clients will have those updated upon reboot. Without getting too wordy, there also are elements of deployment and security that can be applied by using VHD images that you can't get running on a raw disk.

Joe Shonk

Discuss at [www.nwdocfinder.com/8526](http://www.nwdocfinder.com/8526)

## Updates are good

Re: Place your bets against malware ([www.nwdocfinder.com/8527](http://www.nwdocfinder.com/8527)):

I had a major problem last week: IE 7 started behaving weirdly. I went to get on eBay, and got a notification that my browser wasn't accepting cookies. Then I went to a Web site recom-

mended by Windows Secrets to run a check for bots, and got a message offering to install a Java runtime, since I didn't have one — in spite of the fact that I had a Java icon in my tray. Then, when I tried to access Internet Options from the Tools menu,

I got a message saying access was denied, even when logged in as Administrator. Worse yet, when I tried to get properties from the IE desktop icon with a right-click, I got an error about a missing entry point in a [dynamic-link library]. I was convinced I had something that was going to require a full wipe and rebuild.

In desperation, I went to Microsoft Update and pulled down all the latest stuff, in spite of the fact that my last visit there had only been a few weeks earlier. Son of a gun, when I rebooted, everything worked perfectly!

So I guess the moral of the story is, don't get behind on those updates!

Rich Gierman

Discuss at [www.nwdocfinder.com/8528](http://www.nwdocfinder.com/8528)

## Why upgrade?

Re: Windows 7 will not sway XP users ([www.nwdocfinder.com/8533](http://www.nwdocfinder.com/8533)): For business users Windows 7 may have the potential to stop the downgrades that are occurring on so many of the new machines purchased for corporate use. Upgrades, I don't think so, not until support stops or the old machine is retired. I'm still providing support for companies that are running Windows 2000, which meets their basic needs. The software vendor community that serves small to medium business have not universally provided compatibility with Vista. Adoption of Windows 7 will be hindered in the SMB market place just as Vista is today with ut the software vendors support.

Rex Humston

Discuss at [www.nwdocfinder.com/8533](http://www.nwdocfinder.com/8533)

E-mail letters to [jdix@nww.com](mailto:jdix@nww.com) or send them to John Dix, editor in chief, Network World, 492 Old Connecticut Path, Framingham, MA 01701-9002. Please include phone number and address for verification

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#### EDUCATION

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#### TECHNOLOGY

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MALWARE INCIDENTS

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## BLOGOSPHERE

■ **Taser-wielding boss? Can't get to me here.** Ann Bednarz writes in her Work Anywhere blog, "One advantage of working from home is not being physically present when bosses behave badly. Like the boss who used a taser gun on a subordinate; he didn't have a shot at hitting a teleworker that day. Off-site employees were also spared when a boss played show-and-tell with his kidney stone and another held a meeting from inside a locked bathroom. These bad-boss anecdotes surfaced in CareerBuilder.com's most recent survey. Some other doozies? The boss who kept his lunch in a freezer intended for human organ storage, or the one who brought a gun to work and cleaned it in an area behind employees."

[www.nwdocfinder.com/8534](http://www.nwdocfinder.com/8534)

■ **This market needs an intervention — and a 12-step plan.** Denise Dubie hosted guest blogger Richard Muirhead, CEO of Tideway, in her Management Maven blog. Muirhead is reporting from the World Economic Forum in Davos this week. "We were told we are headed for 2.5% growth average over the next three years thanks to a global recession this year and anemic growth next. Other more dire predictions from Davos? We may be in 'Proto-Depression' and/or could 'drift along like this for 10 years. . . . The theme of Wednesday afternoon at Davos seemed to be summed up as this: 'Crisis is a productive state once you have overcome the aftertaste of disaster.' The day's ray of optimism came from China's Premier, Wen Jiabao. While China attained only 6.8% annualized growth in Q4, the target set for 2009 is 8%, something 'necessary and attainable through hard work,' according to the premier."

[www.nwdocfinder.com/8535](http://www.nwdocfinder.com/8535)

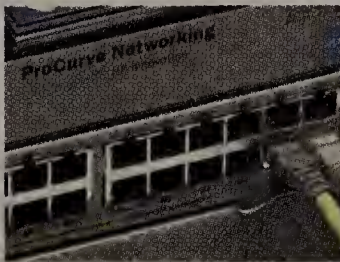
■ **Windows 7 IPv6 support.** Scott Hogg writes in his Core Networking and Security blog: "The more some things change the more they stay the same. That is certainly true for the IPv6 support in Windows 7. Even though Windows 7 is the latest Microsoft desktop operating system, its IPv6 support is very similar to the features inside Vista and Server 2008. . . . One of the controversial IPv6 features in Windows Vista, Windows Server 2008 and Windows 7 is that it uses random interface identifiers when creating its IPv6 addresses. . . . Windows 7 doesn't use the EUI-64 technique by default when forming its interface identifier. Microsoft has blurred the lines between these two address autoconfiguration concepts."

[www.nwdocfinder.com/8536](http://www.nwdocfinder.com/8536)

INTERVIEWS, THE COOLEST TOOLS AND MORE

ITvVIDEO

IDG NEWS WIRE:



### HP alliance optimizes ProCurve switches

ProCurve One, is aimed to bring software for security, application acceleration and other functions right into the network.

[www.nwdocfinder.com/8538](http://www.nwdocfinder.com/8538)

IDG NEWS WIRE:



### Bill Gates boosts fight against polio

The fight to eradicate polio has been given a significant monetary boost through new funds pledged by Bill Gates' charitable foundation.

[www.nwdocfinder.com/8539](http://www.nwdocfinder.com/8539)

IDG NEWS WIRE:



### Portable gadget helps visually impaired

MIT researchers have designed a portable device that allows people with visual impairments to access the internet, view photographs or see the face of a friend.

[www.nwdocfinder.com/8540](http://www.nwdocfinder.com/8540)

## BEST OF NWW'S NEWSLETTERS

# Are your old computers poisoning people in the third world?

**Tech exec:** Most companies are adopting green IT initiatives these days. This includes reducing the power consumption of the data center; enabling workers to telecommute and hold virtual meetings in order to reduce their transportation and travel needs and thus their carbon footprint; and recycling used electronic equipment that the company no longer needs. All of these activities are admirable efforts intended to lessen the impact of business computing on our environment. But when it comes to recycling old computers, green practices may not always be what they seem to be on the surface. It's possible that your recycling service provider might simply be shifting the environmental hazard from one country to another, and this could come back to haunt your company some day. A recent news story on the television show "20/20" reveals what the video producers call "the electronic wasteland." The show followed the disturbing path that some of our electronic waste (e-waste) — including cell phones, televisions, VCRs and DVD players, and of course, computers and peripherals — takes after it goes to the recycling center.

[www.nwdocfinder.com/8530](http://www.nwdocfinder.com/8530)

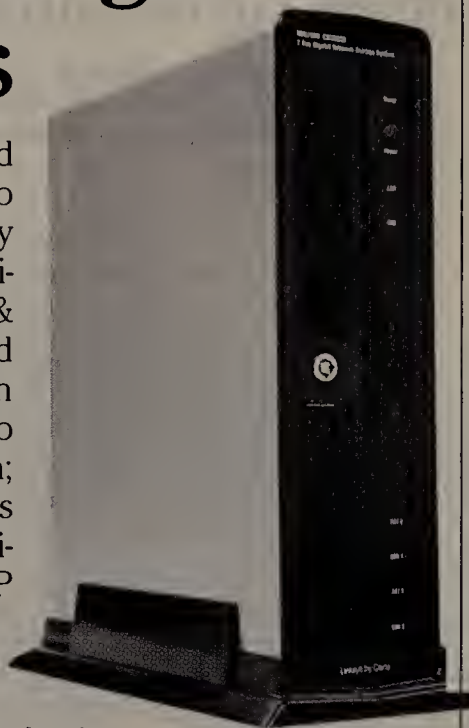
**Network management:** The benefits of virtualization won't come easy, according to research that shows IT organizations investing time and effort into adopting best practices around managing virtual systems are more likely to lower administration costs, speed problem resolution and improve uptime across the environment. Enterprise Management Associates (EMA) recently released the results of an extensive study of 153 organizations with active virtualization deployments, and the findings show that rolling out a virtual server won't deliver many advantages without solid and standard processes in place. Andi Mann, research director at EMA, headed up the study and says mature organizations investing in best practices will see better results than those looking for a quick fix. "Mature IT organizations, those with chargeback and capacity planning processes in place, are 20% more likely to be among the best performers in retiring servers, 14% more likely to reduce power consumption and 14% more likely to have a better administrator to virtual machine ratio," Mann says.

[www.nwdocfinder.com/8532](http://www.nwdocfinder.com/8532)



# Cisco packages target small businesses

Cisco last week unveiled security, storage and unified communications products geared to small companies as part of its recently announced \$100 million commitment to that business market. The products include the Cisco Spam & Virus Blocker appliance; the Cisco NSS2000 and NSS3000 Network Storage Systems (pictured), which are desktop network-attached-storage devices to secure data and let employees share information; and the Cisco Smart Business Communications System Release 1.4, a collaboration and communications system that includes a wireless, desktop IP phone with Bluetooth capabilities. The products come from Cisco's newly formed Small Business Technology Group, which focuses on developing technologies within six small-to-midsize business priority areas: security, connectivity, productivity, remote access, customer interaction and customer support. [www.nwdocfinder.com/8541](http://www.nwdocfinder.com/8541)



gate the data over a wireless mesh network and send it to a Web-based administrative console to give a detailed view of the power being used by each server. The product can identify servers that are drawing power but not running any load, or can be used to compare energy use among servers from different vendors or in different configurations, said Bob Davis, Sentilla's CEO. It also works with storage gear. [www.nwdocfinder.com/8545](http://www.nwdocfinder.com/8545)

**Nortel ends mobile WiMAX agreement, exits business.** Nortel has decided to discontinue its mobile WiMAX business and end its joint agreement with Alvarion. The companies entered into their arrangement in June when Nortel decided to end mobile WiMAX product development in favor of Long Term Evolution. Nortel now will exit mobile WiMAX entirely. The move comes as Nortel attempts to restructure after filing for Chapter 11 bankruptcy protection from creditors. Nortel says the decision will allow it to narrow its focus, better manage its investments and strengthen its broader carrier business to better position itself for long-term competitiveness. [www.nwdocfinder.com/8546](http://www.nwdocfinder.com/8546)

**Google, partners release net neutrality tools.** Google and a group of partners have released software designed to help broadband customers and researchers measure the performance of Internet connections. The products, at MeasurementLab.net, include a network diagnostic tool, a network-path diagnostic tool and a tool to measure whether a user's broadband provider is slowing BitTorrent peer-to-peer traffic. Joining the M-Lab applications soon are a tool to determine whether a broadband provider is giving some traffic a lower priority than other traffic, and a tool to determine whether a provider is degrading certain users or applications. "Transparency is our goal," said Vint Cerf, chief Internet evangelist at Google and a co-developer of TCP/IP. "Our intent is to make more [information] visible for all who are interested in the way the network is functioning at all layers." [www.nwdocfinder.com/8542](http://www.nwdocfinder.com/8542)

**Feds: Fired Fannie Mae contractor tried to crash network.** A former Fannie Mae IT contractor has been charged with planting malicious software on the mortgage giant's systems on the day he lost his job last October. Rajendrasinh Makwana, 35, who at the time was a contract employee at Fannie Mae, planted a nasty custom script designed to wipe out about 4,000 of the company's servers on Jan. 31, 2009, according to a sworn affidavit from FBI Special Agent Jessica Nye. Makwana was indicted last week by a federal court in Maryland on a charge of computer intrusion. The script was installed on Fannie Mae's servers less than an hour after

Makwana was told that Oct. 24 would be his last day at the company, Nye said. It was discovered five days later by a Fannie Mae Unix administrator, who found it tagged on to the end of a legitimate script designed to check that the data-center's storage-area network was running correctly. [www.nwdocfinder.com/8543](http://www.nwdocfinder.com/8543)

**Websense buys Defensio to keep user-generated content clean.** Websense has acquired start-up Defensio for an undisclosed price, gaining tools to clean out spam and malware that get posted as comments to blogs, user forums and other sites that accept user-created content. Defensio's Web-cleaning service — offered free for personal use — depends on software developers incorporating Defensio's APIs into their Web sites. About 10,000 blogs are said to have started using it. Websense expects to continue the Defensio model of use, even as it adds Defensio-based protections to its own tools and services, such as ThreatSeeker. [www.nwdocfinder.com/8544](http://www.nwdocfinder.com/8544)

**Sentilla measures power use.** Sentilla has released a product that measures the electricity being consumed by individual servers in a data center, and makes recommendations based on those usage levels to help cut energy bills, the company announced last week. Called the Sentilla Energy Manager for Data Centers, the product uses small, Java-based devices that plug into the back of each server and measure the actual and "reactive" power flowing to each machine. The devices aggre-

**NAC usage strays from original design.** Few customers of network-access control use it for what it was intended, preferring instead to deploy the security technology to keep guests and contractors away from corporate production networks. In 80% of deployments, businesses use NAC to grant limited access to users who have legitimate reasons to connect to the network but who aren't full-time employees warranting full network access, according to a new report by Gartner. Establishing that endpoints meet a baseline profile — the reason NAC was invented — runs a distant second, with only 15% of deployments restricting network access based on endpoint posture as determined by NAC tests. [www.nwdocfinder.com/8547](http://www.nwdocfinder.com/8547)

**Juniper Q4 grows, but falls short.** Juniper Networks posted a 14% hike in fourth-quarter sales that nonetheless fell short of Wall Street expectations. For the three months that ended Dec. 31, 2008, Juniper recorded revenue of \$923.5 million. That fell short of consensus analyst estimates of \$936.2 million, according to Thomson Financial. Earnings, excluding charges, expenses and other items, were in line with Wall Street estimates: \$169 million, up 19% from a year ago. For the full year, Juniper posted revenue of \$3.57 billion, a 26% hike from 2007 results. Earnings excluding charges, expenses and other items were \$650.8 million, up 36% from 2007. Juniper's overall enterprise business was up 17% year-over-year in the quarter; enterprise now accounts for 31% of Juniper's annual revenue. [www.nwdocfinder.com/8548](http://www.nwdocfinder.com/8548)



# Will carriers weather the downturn?

Verizon, AT&T, Sprint and others cut infrastructure investments

BY BRAD REED

While Verizon and AT&T have continued to post solid earnings over the past year, they are unlikely to emerge from the current recession unscathed.

As Yankee Group analyst Josh Holbrook notes, carriers often lag behind the economic times because they sign their customers to contracts of a year or longer and demand for voice services is fairly stable. Thus, even if consumers and enterprises are hurting financially, they are unlikely to change their telecom spending habits until well after a recession is already under way.

So when the telcos do start to feel the pinch from the recession, how will they adapt? Carriers this year have employed one of the most obvious strategies to save money by cutting jobs. Sprint, for instance, last week said that it was going to lay off 8,000 employees, while AT&T has decided to cut 12,000 workers from its payrolls throughout 2009.

Gartner analyst Tole Hart says that the majority of cuts within the telecom industry are likely to come from telcos' wireline businesses as more consumers switch permanently over to wireless services. AT&T and Verizon's income statements for 2008 lend support to this view, as both companies experienced significant drops in their wireline operating revenue while showing continued growth in their wireless operating revenue.

In addition to layoffs, carriers could slow planned network upgrades and other big capital projects. For instance, both AT&T and T-Mobile last week said that they were planning to focus on upgrading the performance of their 3G High-Speed Packet Access wireless data net-

works before making a big push to switch over to 4G Long Term Evolution technology. Both companies previously stated that they planned to begin deploying LTE in 2010 with a commercial launch slated for 2011. Even so, Hart says that unless the recession gets significantly worse, he expects the carriers will begin rolling out their 4G systems more or less on schedule, with Verizon leading the way by launching its LTE network commercially in 2010.

"It seems like AT&T might be pushing their commercial deployments back a bit, but Verizon seems to be on track," he says. "LTE networks were always going to start out in big cities and then gradually be built out to more rural areas, so it leaves them with some room to tweak their plans."

Hart and Holbrook also see carriers pushing more low-cost services to consumers and enterprise customers. On the enterprise side, Holbrook thinks that carriers will aggressively promote services that require little capital investment or upgrade.

"Think about an enterprise service such as mobile device management that has no capital expenditure and it's a service with very little capital outlay for the customer," he says. "Carriers can look at that and other managed services that are designed to save organizations money but that don't require any special in-house expertise."

On the consumer side, Hart predicts that more users will gravitate toward prepaid plans that let them purchase pay-as-you-go minutes that can be refilled over the Internet and that offer unlimited mobile-to-mobile minutes with users on the same network. Hart says that AT&T has already started pushing this type of service with its GoPhone service and smaller wireless providers such as MetroPCS and Boost will also stand to gain from promoting their unlimited prepaid plans that charge a flat rate for minutes on their networks and only charge extra for roaming minutes.

But while carriers will try to cut their costs through less network investment and by offering less capital-intensive services, both Hart and Holbrook expect carriers to continue spending lavishly on smartphone subsidies. Although carriers are taking big initial hits by offering consumers devices such as the Apple iPhone and the BlackBerry Storm for \$200 each, Hart and Holbrook say they are making up for it with growth in their wireless data rev-

enues. Indeed, because telcos' wireless services are by far their fastest-growing business segment, it makes sense for them to try to maximize their earning power by hooking users onto both voice and data plans.

"I do see these generous subsidies lasting because wireless right now is the only thing that's driving growth," Holbrook says. "We're in a climate where no ship is safe and carriers are battenning down the hatches for the tumultuous times ahead." ■

## InBrief

### Whirlpool chooses IBM for IT services

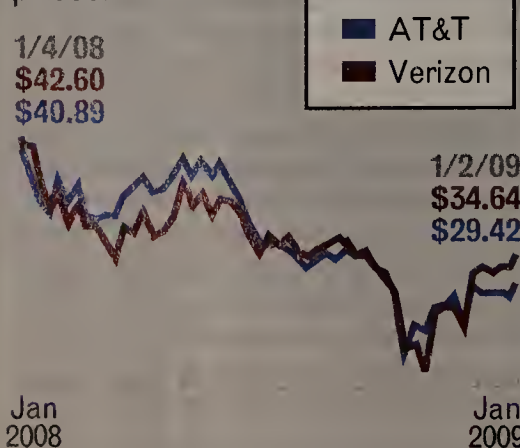
IBM has inked a deal to provide Whirlpool with an array of IT and process standardization services that are aimed at improving the home appliance manufacturer's operations and better aligning IT with the business. The multi-year agreement includes mainframe, server, storage, network, desk-side support and help desk services. Under the terms of the deal, IBM will provide Whirlpool infrastructure services in more than 40 countries, beginning in June. While an IBM spokeswoman says Whirlpool has requested to keep the new contract value and duration undisclosed, the two companies have been working together for more than 20 years. Whirlpool has been an IBM hardware and software customer and IBM has provided "limited services" to the company in Asia and Latin America.

### Backup merger unites Barracuda, Yosemite

Barracuda Networks has swallowed Yosemite Technologies to enhance the capabilities of its data backup product, the company announced last week. With the addition of software agents from Yosemite, Barracuda can offer incremental backups of such applications as Microsoft Exchange Server and SQL Server, as well as Windows system states, said Stephen Pao, vice president of product management at Barracuda, which specializes in e-mail and Web security appliances. The Yosemite software also adds administrative options such as configuration, policy and reporting. The new features have already been integrated for no additional charge into the Barracuda Backup Server. Terms of the deal were not disclosed.

### Falling prices

Despite solid earnings over the past year, AT&T and Verizon have seen significant drops in their stock prices.



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# Disk-drive encryption gains ground

BY ELLEN MESSMER

The Opal industry-standards effort unveiled last week by the Trusted Computing Group should prove a boon to IT professionals exploring desktop encryption options.

The Opal Security Subsystem Class Specification 1.0, as it's officially called, offers a set of mechanisms and protocols for disk-drive encryption, authentication, configuration and policy management. Implemented in disk drives and supporting client and security-management software, Opal will provide IT managers with flexibility and interoperability in managing computers using Opal-based encryption.

"That's what we expect with this, the ability to mix and match, and we're keeping an eye on it going forward," says Ken Waring, IT director at CBI Heath, the Toronto-based Canadian healthcare provider, which today uses Seagate Technology's embedded disk-drive encryption in Dell computers with Wave Systems management software, to protect sensitive data.

While CBI Health has found hardware-based disk encryption an excellent way to protect data, the only negative is "it's restricting us to one model," Waring says. Opal promises to bring a new level of interoperable security so that IT managers could mix and match manufacturers' Opal-based disk drives and vendor software-management tools.

Backers of TCG's Opal initiative, which uses the Advanced Encryption Standard (AES), include disk-drive manufacturers Fujitsu, Hitachi and Seagate, as well as software vendors Wave, WinMagic Data Security, Crypto-Mill Technologies and others. Fujitsu, for instance, is promising Opal support in its 5400 rpm and 7200 rpm Notebook drives during the second quarter.

"The basic objective is how do we embed security in the drive, to have encryption and authentication, and do it in a standardized way so it works no matter what drive you have," says Lark Allen, vice president of development at Wave, which has demonstrated Opal-based interoperability with its Trusted Drive Manager working with Fujitsu's Opal implementations.

Opal is among the latest efforts to satisfy the growing corporate demand for disk encryption. According to Forrester's survey of 942 IT and security managers in North America and Europe, full-disk encryption was cited as the top client security technology to be piloted or adopted this year.

Encryption is fast becoming a necessity for both stored and in-transit data. In some industry sectors, particularly healthcare in the United States and abroad, encryption is necessary to satisfy regulatory requirements.

"The Department of Health requires that no patient data be sent unless it's en-



**"Encryption simply comes down to prudence regardless of regulations."**

**Ken Waring**  
IT director at CBI Heath

crypted," explains Saeed Umar, the IT project manager at Lancashire Teaching Hospitals NHS Foundation Trust, based in London. The hospital system, which provides healthcare to hundreds of thousands of individuals and educates medical students from the University of Manchester and the University of St. Andrews, has a staff of 6,500 and about 4,000 PCs.

The healthcare organization two years ago settled on using Voltage SecureMail to encrypt sensitive information that was e-mailed, because it works without requiring client software on the receiving end, Umar says. "I wanted e-mail anywhere, and this works to send e-mails anywhere securely," he says.

Umar's next important encryption project involves deploying McAfee's Endpoint Encryption (formerly called SafeBoot) on about 400 laptops for data protection, he says, adding

that the British government's health authorities are mandating it.

There's open debate, however, over the perceived advantages and disadvantages of deploying software-based disk encryption based on products from security vendors vs. deploying hardware-embedded disk-drive-based encryption that's become available from disk-drive manufacturers.

CBI Health's Waring says his organization did adopt software-based encryption for its older computers. His experience with software-based full-disk encryption has been much less satisfactory than his experience using Dell computer, Seagate-based disk-drive-based encryption, he says (he prefers not to divulge the specific software vendor).

"We had problems with the installation of the software-based product," Waring says. In a few instances, the encryption software was uninstalling itself, apparently due to bugs related to the software keys.

When Waring asks his IT staff today which they prefer to manage, the answer has overwhelmingly been the hardware-based encryption.

"It's been no stress," Waring says, predicting the future probably will see every disk drive capable of encryption, and the best direction for this would be fewer proprietary implementations for them if security standards efforts such as Opal truly work out in practice. ■

## Venture investments plummet for network start-ups

BY JON BRODKIN

Venture capitalists dramatically reduced investment levels in network start-ups at the end of 2008, according to new research.

Investors gave \$27 million to network start-up and seed vendors in the fourth quarter of 2008, about a third of the amount invested in the previous quarter and a fifth of the amount invested in the last quarter of 2007, when start-up investments exceeded \$136 million.

Additionally, the \$27 million was the lowest quarterly total seen in 14 years of data provided to *Network World* by PricewaterhouseCoopers and the National Venture Capital Association, authors of the quarterly MoneyTree Report.

Those groups track U.S. venture capital investments across all industries, and provide *Network World* with data specific to network vendors, including makers of hardware, telecom products, network-related software and Internet-related technology.

As a whole, network vendors collected \$1.8 billion from venture capitalists in the fourth quarter of 2008, slightly less than in the third quarter, but nearly all of that went to early-stage, expansion and later-stage companies as opposed to newly founded start-ups. This continues a trend in which venture capitalists are avoiding new vendors because they have not yet gained liquidity on previous investments.

"There's still a good appetite for these [network] companies," says Tracy Lefteroff, a global managing partner of PricewaterhouseCoopers. "But in the longer term, until you see some liquidity, I'm not sure you're going to see a ramp-up of new investment in the area."

The market for start-up IPOs and mergers and acquisitions will probably be weak throughout 2009, Lefteroff says.

In all industries, the MoneyTree Report identified 3,808 deals totaling \$28.3 billion in 2008. That represents an 8% decrease in dollars from 2007, and a 4% decrease in deal volume. ■



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## Data center

continued from page 1

enterprise networking market and picking its battles strategically."

HP's weapons for this battle include a new switch line optimized for top-of-rack data center switching applications. The 6600 line includes five Gigabit and 10 Gigabit Ethernet switches, all in 1RU form factors but in a variety of configurations.

Indiana University is putting the 6600 through its paces in preparation for building a new data center. It currently has two, which support about 1,700 servers.

"As we started looking at our requirements, it made a lot of sense for us to move from an end-of-rack switching model to a top-of-rack switching model," says Matt Davy, chief network architect for the university. "The 6600 has a lot of interesting features for top-of-rack."

Indiana University also is evaluating Cisco Nexus 5000 switches for this application. The school is implementing a top-of-rack architecture to lower the cost of increasing gigabit densities that server virtualization presents, as well as an eventual migration to 10G Ethernet, Davy says.

"Doing 10G at top-of-rack is definitely more cost effective because of the SFP+ direct-attached cables reducing your connection cost to the servers," Davy says.

The server module for HP ProCurve's 8200 and 5400 zl switches is called the ProCurve One Services zl Module. It is based on an Intel T7500 Core 2 Duo processor with 4GB of memory, 4GB of flash memory, and a 250GB hard drive.

The zl module has two 10G Ethernet connections to the switch backplane, and future capabilities include virtualization, scalability, other form factors, and closer coupling with the switch management and forwarding plane, HP says.

The zl module runs software applications from Microsoft (security and network access), McAfee (Web security, filtering and IPS), Avaya (unified communications), F5



**The Nexus 2000 Fabric Extender is designed to connect an increasing number of servers to Cisco's unified data center fabric design.**

Networks (application delivery control and load balancing), Riverbed Technology (WAN optimization) and others. A single zl module can run only one application, however, but two modules can run in one 8200 or 5400 switch chassis.

City College of San Francisco is using the zl module to run a network monitoring application from HP partner InMon Corp. "InMon's Traffic Sentinel on the module handled all the sFlow reporting we threw at it with lower CPU utilization rates than our production server," says Glen Van Lehn, network engineer at the college. "This gave me a server with zero footprint — no extra space (assuming an empty slot), no extra electrical outlets or UPS outlets, and no extra Ethernet ports as the two 10 Gigabit interfaces plug directly into the backplane," he says.

The 6600 switches are priced at \$4,700 to \$18,000, and are expected to be available in the first half of this year. The Services zl Module costs \$6,000 and is expected to be available in February.

To protect its own data center turf, Cisco is rolling out the Nexus 7018, Nexus 5010 and Nexus 2000 Fabric Extenders. The Nexus 7018 joins the Nexus 7000 Series with an 18-slot chassis that provides as many as 16 I/O module slots supporting as many as 512 10G Ethernet ports — twice the density of the Nexus 7010, which debuted a year ago.

The Nexus 5010 is a 28-port, 1RU switch supporting 10G Ethernet, Cisco's version of a lossless Data Center Ethernet, Fibre Channel over Ethernet and Fibre Channel. These features enable it to consolidate traffic from LANs, storage-area networks and server clusters onto a

single unified fabric, Cisco says.

The Nexus 2000 Series Fabric Extender is intended to support an increasing number of servers and increased demand for bandwidth from each server. The Nexus 2148T Fabric Extenders connect to dual Cisco Nexus 5020 switches and are designed to improve scalability by supporting as many as 2,496 Gigabit Ethernet servers.

Enhancements for the Catalyst 6500 line include an in-service software upgrade and support for long-range integrated 10G Ethernet optics to reduce the time needed for planned network maintenance and to facilitate virtual-machine mobility across data centers. The Catalyst switches also will be getting some IOS software that lets them control the energy usage of attached devices. Called EnergyWise, the software was developed under the code name Big Bang.

EnergyWise is designed to proactively measure, report and reduce the energy consumption of IP devices. The software includes APIs to Cisco third-party partner packages that will enable the management of power consumption for entire building systems, such as lights, elevators, and air conditioning and heating, Cisco says.

"By attaching more things to the network, it allows you to make better decisions around energy," says Zeus Kerravala, an analyst with The Yankee Group. "This can be extended to security as well — you can turn cameras on in certain areas. So, there's a lot of benefits for it."

EnergyWise will roll out in three phases. In the first phase, it will be supported on Catalyst switches and manage the energy consumption of networked IP devices, such as phones, video surveillance cameras and wireless access points.

The next phase will include expanded industry support of EnergyWise on such IT devices as PCs, laptops and printers. In the final phase, EnergyWise will be extended to the management of building system assets, such as heating, ventilation and air conditioning; elevators; lights; employee badge access systems; fire alarm systems; and security systems.

Cisco last week acquired Richards-Zeta, a company that develops middleware designed to enable computers and building systems to be controlled by switches and routers in an IP network.

EnergyWise is a free software upgrade to existing Catalyst switches and is expected to be available this month. It will support fixed-configuration switches initially, with chassis-based systems — the Catalyst 4500 being the first — to follow on later. ■

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# IT pay takes a hit

Pay for noncertified and certified skills on the decline going into 2009

BY DENISE DUBIE

IT salaries won't be spared from the economic malaise plaguing North America, according to recent research that confirms pay for noncertified and certified IT skills declined in late 2008 and is expected to fall further in 2009.

IT pay for noncertified skills has been on the rise consistently since mid-2004, but the current economic climate has taken its toll, according to Foote Partners' IT Skills and Certifications Pay Index, which tracks pay for 354 skills and certifications earned by 22,550 IT professionals in the United States and Canada. The average market value for 179 noncertified IT skills dropped 0.5% in the last three months of 2008, the first time in several quarters. Pay for the 175 IT certifications Foote Partners follows dropped 1% in the last quarter and 5% for the year.

"It was inevitable for skills pay to start reflecting the hard times we're in. This is not the first time in 10 years tracking skills and certifications pay and demand that we've seen corrections brought on by economic conditions," said David Foote, co-founder, CEO and chief research officer at the firm, in a statement.

Among the noncertified skills that saw a decline in the last quarter of 2008 are applications development tools and language skills, with the average median down nearly 2%. Others include SAP and enterprise application skills, which experienced a 1.7% decrease in pay, and pay for operating systems skills fell about 1.6% on average. Web and e-commerce skills pay dropped about 1.5%, and average compensation for systems and networking skills decreased by 0.8% during the quarter.

Certified skills, which have been seeing drops in pay since 2006, saw more significant decreases in the last quarter, according to Foote Partners' research. For instance, pay for Web development skills fell 16.3%, and those with application-development and programming-language skills experienced average decreases of 5.3%. Other certification areas that dipped into the loss area include certified systems administration and engineering and network operating-systems skills, which dropped 2.2% during the last quarter of 2008 and 9.7% for the year.

Yet the news isn't all bad. Foote Partners' research revealed key skill areas in which pay increased in late 2008 and could continue to grow in the coming months. Clearly, an urgent demand for talent in several areas is eclipsing broad, knee-jerk reactions to reduce budgets and cut people, projects and purchases without thinking carefully about the consequences," Foote said. "It's about how smart they're spending what they have."

For instance, noncertified skills in manage-

ment, methodology and process earned 5.6% more in pay, while pay for database skills increased by 2.9%, and messaging and communications skills pay saw an increase of 2.8%.

As for certified skills, project management and architecture skills pay experienced a 3.1% increase in the last quarter (10% for the year), and IT security pay ticked upward by 0.8%. Pay for IT certifications for networking/internet-

working skills grew 1.1% in the last part of 2008.

"The fact is that employers made mistakes in past downturns, huge miscalculations in the heat of cost-cutting that hurt them later on," Foote said. "Employers are obviously now aware that continuing to invest strategically in IT skills and labor is the smartest thing they can possibly do to make it to the other side of this recession as stronger, undiminished enterprises." ■

## Wireless spectrum plan faces uphill battle

BY JOHN COX

In two weeks, South Carolina will find out if its educational wireless spectrum is a gold mine or an albatross.

On Jan. 2, a recently created state commission released an RFP inviting bids on 67 Educational Broadband Service (EBS) licenses, originally issued decades ago for one-way, analog, educational TV broadcasts allowing a lecture to be watched in multiple classrooms,

for example. There's enough of this 2.5GHz spectrum not only to cover nearly every square inch of the state but also to shower 5.6 million residents with multichannel, wireless broadband voice, video and data services.

All that is possible because the FCC in 2004 and 2006 revamped the 2.5GHz rules. One key change let EBS holders lease out as much as 95% of their spectrum, which is rarely used for

**See South Carolina, page 30**



South Carolina wants to repurpose a chunk of 2.5GHz spectrum that FCC rules now permit to be leased to commercial enterprises. Shown are the overlapping and contiguous license areas in two of seven blocks of spectrum, color-coded. Statewide wireless networks potentially could serve large numbers of users.

IMAGE COURTESY OF SPECTRUM BRIDGE



# Get ready for high-def voice

It will be years before it's pervasive, but preparing now will help

BY TIM GREENE

High-definition voice — a rarity in today's business networks — is becoming more common, so it makes sense for corporate telephony executives to figure out now how they will make the transition, experts say.

IP PBX vendors can issue software upgrades to support better-quality voice calls, but upgrading handsets and getting service providers onboard with the technology is a more complex proposition that needs to be thought through, they say.

The benefits of HD or wideband voice include an easier understanding of what is being said and a more authentic reproduction of live speech, both of which are essential in immersive telepresence systems that generate the illusion that conference participants are seated across from each other in the same room, says Jerry Knight, CTO of Accessline, the audio services arm of video service provider Telanetix.

"Video perhaps is not as important as audio in creating that impression," Knight says. "Audio is at least as important."

The benefits of HD are not so obvious in voice-only uses. But the difference can be significant especially with speakerphones and when talking to people with strong accents, where every bit of clarity helps, says Jeff Rodman, Polycom co-founder and CTO of its voice communication branch. "In these cases we need all the clues we can get," he says.

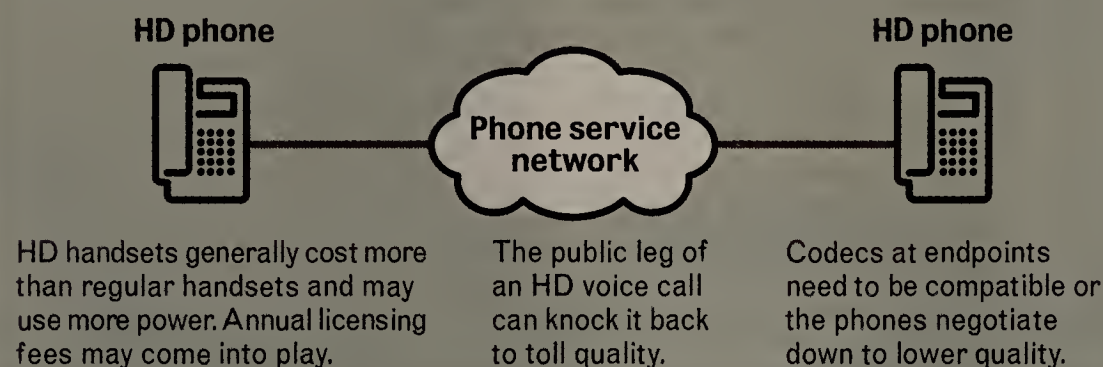
HD voice gives better quality than what used to be the premier telephony standard in the public-switched telephone network — toll-quality voice.

HD voice generates frequencies at the high end of human speech that toll-quality voice cuts off. In practical terms this means being able to hear the difference between words such as "pig" and "fig" without asking whether that's a p as in Peter or an f as in Frankenstein.

Wideband voice increases the top frequency range covered by the voice coder-decoders (codec) from about 4 kHz to something higher, typically 7 kHz, but it can go even higher to

## HD voice cautions

The quality of high-definition voice is better than traditional toll-quality voice, but it requires the right gear and the right network conditions. And watch the price.



14 kHz or 20 kHz. One consequence of this wider band is the need to sample speech more times per second in order to capture more of its subtleties. Rather than 8,000 times per second, sampling jumps to 48,000 times per second.

That means the VoIP phones supporting HD need more powerful processing and memory, both of which cost more, but with Moore's Law applied to the phones, the cost differential is narrowing. For example, Polycom's SoundPoint IP 501 phone with Power over Ethernet (PoE) and three lines but with no wideband support costs \$295. A roughly comparable SoundPoint IP 550 with PoE, four lines and HD support costs \$369.

As Polycom introduces HD phone models, it is phasing out the equivalent narrowband phone, so eventually all its line will support wideband and remain backward compatible with narrowband, Rodman says.

Because the endpoints and the networks between the endpoints must both support HD voice in order for it to work, most wideband deployments are within corporations, not between them, says William Bumbernick, CEO of hosted VoIP provider Alteva. "The ability to call a different company on a different carrier and completing an HD call is becoming more and more expected," he says, but "today, the chances are still pretty slim that that will happen."

If wideband voice is to become a reality, carriers must invest in upgrades to their VoIP networks, and that could take five to 10 years, Knight says, although Rodman is more optimistic, estimating three to five years. To establish HD VoIP calls using Session Initiation Protocol, networks must have the intelligence to negotiate the use of HD codecs.

Despite its advantages, HD voice is not for

everybody. Companies that have recently invested in narrowband VoIP systems may want to wait until their next upgrade cycle, Bumbernick says. And if they are just moving to VoIP but have doubts about whether their IP networks will support it, they should invest in network upgrades first and foremost, he says.

But for companies that have VoIP and are looking to refresh their gear, HD may be a wise investment, he says. If the new voice system is slated for an eight- to 10-year life, it makes sense to have it HD-capable. "You're best served to choose technology that will get you as far down that eight-to-10-year path as possible," he says.

Once the IP PBX supports HD, companies can upgrade their handsets incrementally to support wideband, Bumbernick says. Key executives, for example, who would benefit from clearer calls could get the more expensive HD phones now, while others keep narrowband handsets.

Adhering to HD codec standards is essential if businesses hope to share the improved experience with partners they talk to. There are several, such as G.722, G.722.1 and G.722.2, all of which produce wideband voice but require different amounts of network bandwidth to send their encoded signals — 64Kbps, 24Kbps and 10Kbps, respectively.

Similarly, the three codecs require differing amounts of processing power — 14 MIPS, 5.5 MIPS and 38 MIPS. So there are trade-offs that vendors have to weigh.

And there are trade-offs that customers have to make as well, Knight says. "Except for specific environments where the need is clear, you would put HD voice in the category of a luxury," he says. "But if the choice is between systems that are equivalent in cost, then an HD option is something that's nice to have." ■

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# Feds: We want our BlackBerry too

FEMA, other agencies award contracts for wireless services, smartphones

BY CAROLYN DUFFY MARSAN

President Barack Obama isn't the only U.S. federal government employee who wants to keep his BlackBerry. Across the federal market, information workers are asking for mobile devices such as smartphones and laptops with wireless data cards so they can access e-mail and other Internet services while they are on the go.

Increasingly, federal agencies including the Federal Emergency Management Agency (FEMA) and the U.S. Department of the Interior are responding with wireless data contracts worth tens of millions of dollars to carriers.

While sizeable, these centralized purchasing vehicles are designed to save agencies money compared with letting field offices buy their own cell phones and wireless data plans.

In addition, federal agencies are asking wireless carriers to help them monitor the security of their mobile devices and maintain centralized inventories, which until now have been spotty.

"Agencies have been paying a lot for wireless services because they're buying them in a highly decentralized way," says Warren Suss, a Jenkintown, Pa., consultant specializing in the federal IT market. "Not only is that costing them a lot, but agencies are losing visibility and unable to keep track of their inventories. That's why agencies are trying to aggregate their purchases of wireless devices."

For example, AT&T announced Monday that it was awarded a series of wireless voice and data contracts from FEMA that could be worth up to \$50 million over the next five years.

AT&T said it will deliver secure, reliable wireless data and voice communications to FEMA's 6,600 employees, who are responsible for coordinating the federal government's disaster response and recovery operations.

"What you're seeing here with the FEMA acquisition and those by other agencies is that they're looking for the benefits of centralized purchasing and management of their wireless devices," Suss said. "Agencies are getting the vendor community to do special things for them like have a single 800 number for a help line."

AT&T will provide FEMA with its Laptop-Connect wireless cards, BlackBerry 8820 smartphones and 3G LG CU405 units, which provide Push-to-Talk capabilities for first responders. AT&T will provide wireless connectivity on its Wi-Fi and EDGE wireless networks.

"AT&T has a nationwide footprint, and FEMA needs to have that," says Joe O'Bryan, a vice president with AT&T Government Solutions. "FEMA was looking for rapidity of response in a crisis, and we have the capacity to handle their demands."

AT&T was awarded the FEMA contracts

## Going mobile

Federal employees are becoming more mobile, but many lack gear that could make them more productive, according to research from the Telework Exchange.

- 82% of federal workers say they spend work time outside the office each month.
- Federal employees who use a smartphone for work purposes report an average time savings or productivity gain of 54 minutes per day.
- 66% of mobile federal employees do not have a smartphone.
- Federal employees who want a smartphone say it will help them stay organized and responsive (cited by 69% of respondents) and remain connected on the job (21%).
- Federal agencies can justify issuing smartphones based on continuity of operations (61%), increased productivity (59%) and support for telework initiatives (23%), survey respondents say.

Source: Telework Exchange survey of 446 federal workers representing 21 agencies.

through a competitive bid on Dec. 17, but announced them Monday. AT&T already has set up a wireless Cell on Wheels system at FEMA's headquarters in Mount Weather, Va.

"We're providing four bars of service all over that campus," O'Bryan says. "That was just to demonstrate how fast AT&T could act for FEMA."

AT&T's FEMA win comes on the heels of a centralized wireless contract that the Department of the Interior awarded to Verizon Business last summer.

Verizon is helping the department manage and track expenses for more than 22,000 mobile devices. The Verizon deal could be worth as much as \$15 million over the next five years.

Verizon is providing expense-management services for mobile phones, personal digital assistants and other wireless devices used by the Department of Interior and its bureaus, which include the National Park Service, the U.S. Fish and Wildlife Service and the Bureau of Land Management.

The department awarded the contract so it can figure out where all of its wireless devices were deployed and how much it was spending on wireless services.

Verizon will track devices from all wireless providers, while providing around-the-clock help desk support to the agency's employees. The subcontractor on the deal is ProfitLine, which provides telecom expense management services.

"The Interior deal... was ahead of the rest of the government," Suss said. "They did it right. They saved a lot of money, and they have better visibility and more management controls."

Meanwhile, AT&T said it is providing wireless

devices and services to the Internal Revenue Service and the U.S. Postal Service.

"2008 was a very strong year for mobile applications," said Rick Zambrano, vice president of Defense Department sales for AT&T Government Solutions, in a recent interview. "We know that the federal government is a mobile workforce, with 91% of federal employees having worked away from the headquarters office at one point or another. Telework has been a buzzword that's been in the federal government for many years, but from a wireless perspective it's becoming more of a reality."

Zambrano said AT&T is providing around 4,000 wireless cards to the IRS that its inspectors use to access e-mail and internal Web pages through a secure virtual private network also operated by AT&T.

"All of these Aircards were bought during 2008," Zambrano said. "Now that IRS is getting used to this idea, they can see their productivity is going through the roof. . . . Now they can think about other mobile applications like content distribution and video."

AT&T also has sold 5,500 BlackBerry devices to the U.S. Postal Service, which is using them for e-mail as well as newer applications such as fleet management, Zambrano said.

"Field force automation is a critical issue for federal agencies that are trying to do more with less," Zambrano said. "The issue is how do you get your people to become more productive? How do you recruit and retain top talent? Wireless technology is a real hot button with young, talented workers."

Suss predicts that more federal agencies will award large, centralized wireless deals in 2009. ■



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# VMOps aims to ease cloud setups

Start-up offers cloud-computing infrastructure stack, built like "EC2 in a box"

BY JOHN FONTANA

Building a cloud computing infrastructure can be a complicated endeavor, but stealth start-up VMops hopes to provide a silver lining with its all-in-one infrastructure software that lets service providers or corporations deploy and host their own clouds.

Cloud hype revolves around moving applications to the cloud, attaching to the cloud, or integrating with the cloud, but what gets little attention is what's required to build and maintain the infrastructure that defines the cloud.

VMops says it is expensive but doesn't have to be.

Later this year, VMops will introduce its VMops Cloud Stack, which is a single platform with all the software needed for deploying a cloud infrastructure. The company says it will transform building and maintaining a cloud platform from a Herculean effort into a manageable task.

The VMops Cloud Stack runs on commodity x86 hardware and includes a multitenant hypervisor based on Xen that encompasses VMops-developed network management and storage layers. The result is an "elastic computing service," an environment subscribers can expand and contract at will.

Cloud computing's best known implementation is Amazon's Elastic Computer Cloud (EC2), but Microsoft, Google, Sun and IBM also are building cloud infrastructures and services.

VMops' vision is that its stack will allow service providers to easily create hosted and virtual-private elastic cloud platforms, or corporations and universities to build on-premises cloud platforms that host services and offer users flexibility without sacrificing IT control.

"We are able to provide a one-stop shop," says Sheng Liang, who founded VMops just more than a year ago. "All the software is from us and is built with off-the-shelf technology right down to the hypervisor."

Liang is no stranger to new technology. He developed the Java Virtual Machine at Sun, co-founded Teros Networks (which was acquired by Citrix), and was on the senior management teams at Seven Networks and Openwave Systems, where he helped develop software products for wireless operators and wire-line service providers.

The VMops platform is grounded in what the company calls its multitenant hypervisor, which installs on bare metal hardware. It also includes the VMops Cloud Server, which can manage thousands of servers running in the VMops multitenant hypervisor. The server also provides service-level monitoring, high availability and load balancing along with a user GUI and back-office integration hooks.

"We have a sort of hardened, improved ver-

sion of Xen, and then on top of that we built storage and network virtualization and then added management capabilities on top of all that," Liang says. The hypervisor supports isolation of CPU, memory, storage and network resources for virtual servers, and the hypervisor includes custom code so it can handle network and storage virtualization.

With the storage virtualization, the platform supports storage-area networks, network-attached storage, direct-attached storage and even local disk.

On the network side, VMops has developed technology for virtual LAN functionality and private networking.

Management tools provide functionality to define service offerings, integrate with back-office systems, manage user accounts and generate billing records.

The user self-service features allow users to

register for services, import and provision virtual machine instances, and launch and manage virtual environments.

"We tried to build EC2 in a box," says Shannon Williams, VMops's head of sales and marketing. "The whole package makes this by far the cheapest way to get going with, say, 500 virtual machines running on a rack."

VMops plans initially to target its platform at service providers. The company has yet to announce pricing for the platform, which is now in beta and likely to ship by year-end.

The technical specifications for the platform include a Dell PowerEdge 1950/2950 server or an equivalent; direct-attached storage in the form of a Dell PowerVault MD1000/3000 or equivalent; a network switch such as the Cisco 3750-E or a compatible Gigabit Ethernet Switch with a 10G uplink; and a Cisco ASA 5500 series firewall. ■

## With economic slump, concerns rise over data theft

BY ROBERT MCMILLAN, IDG NEWS SERVICE

Is the worsening economic situation going to turn some employees into data thieves?

That's a top concern among IT decision makers, many of whom say that laid-off employees are the biggest security threat created by the economic downturn. In a McAfee-sponsored worldwide survey (registration required) of 1,000 IT decision makers, the company found that 42% of respondents felt that laid-off employees represented the biggest IT security threat caused by the recession. That's more than were worried about outside intruders. And 36% said that they were worried about security problems caused by employees in financial stress.

Crime rates spike during hard times, and with thousands of workers being laid off each week now, there may be an added incentive for employees shown the door to take intellectual property with them to bolster their chances of getting hired with a competitor, to use with a start-up company of their own, or maybe even to sell.

"The economic downturn across the board is going to provide additional motivation for people who would want to do harm," said Seth Bromberger, an information security manager with PG&E in San Francisco. "It's on a lot of people's radar right now."

According to Bromberger, companies that

have their employee exit processes in order have less to fear from laid-off workers. It's just that with the current economic squeeze, people's motivation may be changing.

Layoffs can fray employee loyalty, and there certainly is money to be made selling all kinds of corporate data.

Last August, Rene Rebollo, a financial analyst with subprime mortgage broker Countrywide, was arrested by the U.S. Federal Bureau of investigation for allegedly selling Excel spreadsheets containing customer information for about two-and-a-half cents per record. Over a two-year period he may have made \$70,000 from the scam, the FBI said. His annual salary was \$65,000.

According to court filings, Countrywide had security software that disabled the use of USB drives on its PCs. But Rebollo found one PC that didn't have the software and was able to download about 20,000 records each week onto his personal thumb drive, which he'd later e-mail to a buyer, the FBI said.

USB drives are one of the most underestimated sources of data leaks, says McAfee CEO Dave DeWalt. "For \$100 you can buy a 100GB drive," he said. "100GB can be the entire customer base for an entire large company."

An economic slowdown can create other computer security problems too. As businesses fail and are bought, that churn can lead to management chaos within IT groups. ■



# Broadband stimulus: aimed at wrong target?



**NET INSIDER**  
Scott Bradner

**P**resident Obama is not happy that the United States is ranked 15th in the world in broadband adoption and wants to fix things as part of his big economic stimulus package. But it's not clear that the type of approach in the current draft bill will help improve the U.S. ranking all that much. Part of the problem is that the ranking is misleading.

The ranking comes from the Organization for Economic Co-operation and Development (OECD). The OECD report from last summer

lists the United States as 15th in broadband subscribers per 100 inhabitants. But there are reasons to say that the United States should be ranked even lower.

There are a lot of statistics on the OECD Web site about broadband usage in various countries. Let's start with the OECD's definition of broadband, which is any Internet connection with a download speed of 256Kbps — hardly high speed these days. The United States shows up as having an average advertised download speed of 8.8Mbps, 14th in the world, but there are a lot of places where getting an actual 256Kbps would be a rare event.

The best in the world is Japan with an average advertised speed of 93Mbps followed by France and Korea, both of which are at more than 40Mbps. The United States looks rather wimpy in comparison.

The key statistic that points to why the president's plan may not help a whole lot is the fact that the United States ranks 11th in terms of monthly price per megabit — \$12.60.

This compares rather poorly with Japan and France at under \$4 per month.

The Pew Internet & American Life Project just published the results of two surveys on Internet connectivity it ran over the last year. This report shows that not many people are blocked from getting broadband Internet access because it is not available in their area. There is no question that there are big parts of the country where broadband access cannot be obtained unless you are willing to use a satellite service. It is hard to tell in how much of the country this is true because of the poor statistics the FCC has been collecting.

The Pew report says that some people (more than 15%) have no interest in getting online. Another 6% think the price is too high, and 5% have usability problems. The president's plan is unlikely to change these numbers much.

The current draft of the broadband part of the stimulus package focuses on providing grants to companies that are willing to deploy wireless or wired broadband in underserved areas. The bill mandates open access to any services that result from such grants.

But, if the report is correct, the stimulus money and open access policies might only result in a few percent of additional broadband users in the United States. Figuring out how to get more competition into the picture so that prices could come down might yield a greater return.

Disclaimer: Competition does not bring down prices in all areas, for example university fees (although Harvard has an aggressive aid program to offset the fees for many students). Harvard has not commented on broadband stimulus package options, so the above is my observation.

*Bradner is Harvard University's technology security officer. He can be reached at [sob@sobco.com](mailto:sob@sobco.com).*

## The tangled web of universal broadband



**EYE ON THE CARRIERS**  
Johna Till Johnson

**R**egular readers are probably familiar with my opinion on universal broadband service, but for anyone who's missed out, it's pretty simple: Love the idea, but fear the devil is in the details. Specifically, I'm talking about the details about who is going to pay, what they're paying for and how the money is to be collected. And then there's the question of who's going to build out the infrastructure.

Because universal broadband is a key initiative of the new administration, here's an early look at current thinking. There are two bills that differ in two key respects: The House bill proposes an investment of roughly \$6 billion, while the Senate bill is for \$8 billion; and the House bill earmarks roughly half of the funds to be administered by the Rural Utility Service. Both bills call for net neutrality requirements for infrastructure providers (a bit tricky because there's no agreed-on definition of net neutrality).

Then there's the open question of what role, if any, the Universal Service Fund will play. Both bills tacitly acknowledge the USF has been a disastrous failure, both in philosophy and execution. As I've noted previously, the USF managed to subsidize both the Gambino crime family and Wyoming billionaires. And the fund's basic design was totally whacked: It operated as a tax on telcos, which passed along the fees to their customers — meaning that people who were paying full costs for telephone services were being asked to pay again, while the actual users didn't need to pay.

**If the net neutrality provision is passed, universal broadband proponents may discover that carriers aren't interested in a build-out under those terms.**

Happily, both bills seem to conceive of an entity other than the corrupt, poorly managed and poorly architected USF handling the job. So, how is this likely to play out?

First, proponents tend to believe that \$6 billion isn't nearly enough money. Gigi Sohn, a well-known communications-policy lawyer with whom I served on a panel recently, says the real cost of implementing universal broadband is closer to \$20 billion; others say closer to \$200 billion. If they're right, the investment is unlikely to be effective in reaching the goal of truly "universal" broadband.

If the net neutrality provision is passed, universal broadband proponents may discover that carriers aren't interested in a build-out under those terms. That may not be the end of the world — municipalities and state and local governments could fill the breach despite their previous problems with Wi-Fi. Running Internet access as a direct public service — rather than attempting to create a business case where none exists — may be the exact right answer here.

The problem — and it's a biggie — would be how to convince carriers to take the traffic from the access providers, and at what price. As I've documented previously, demand for Internet service is increasing exponentially, yet carriers don't make money transporting it. That comes back to the question of peering agreements — something universal broadband proponents have yet to tackle.

The upshot? Making universal broadband happen may prove harder than merely proposing it.

*Johnson is president and senior founding partner at Nemertes Research, an independent technology research firm. She can be reached at [johna@nemertes.com](mailto:johna@nemertes.com).*



# Seven security industry secrets

What you don't know can hurt you

BY JOSHUA CORMAN

**D**o you ever get the feeling your security providers are failing to tell you the whole truth? We entrust the industry to protect us from unacceptable risk. But we must confront the underlying truth: The goal of the security market is to make money.

Here are the seven dirty secrets of the security industry and practical ways to command honesty from your trusted security providers.

**1. Antivirus certification omissions.** The dirtiest secret in the industry is that, while antivirus tools detect replicating malicious code such as worms, they do not identify malware such as nonreplicating Trojans. So, even though Trojans have been around since the beginning of malicious code, there is no accountability in antivirus certification tests. Today Trojans and other forms of nonreplicating malware constitute 80% or more of the threats businesses are likely to face. Antivirus accountability metrics are simply no longer reflective of the true state of threat.

**2. There is no perimeter.** If you still believe in the perimeter, you may as well believe in Santa Claus. That isn't to say there is no perimeter, but we need to define what it is. The endpoint is the perimeter, the user is the perimeter. It's more likely that the business process is the perimeter, or the information itself. If you design your security controls with no base assumption of a perimeter, when you have one you are more secure. The mistake we tend to make is that if we put the controls at the perimeter, then we will be fine. For many threats, we couldn't be more wrong.

**3. Risk management threatens vendors.** Risk management really helps an organization understand its business and its highest level of risk. However, your priorities don't always map to what the vendors are selling. Vendors focus on individual issues so you will continue to buy their individual products. If you don't have a clear picture of your risk priorities, vendors are more than happy to set them for you. Trusted security partners will provide options for assessing your risk posture and help you develop plans to make the most security impact for the least cost and complexity. Security needs to conform to and support your

business priorities. Too often, vendors want your business to conform to their portfolio.

**4. There is more to risk than weak software.** The lion's share of the security market is focused on software vulnerabilities. But software represents only one of the three ways to be compromised, the others being weak configurations and people. The latter is the largest uncovered area of risk. This is malicious code that doesn't leverage a vulnerability but rather leverages the person — for example, downloading a dancing skeleton for “a spooky good time” (this was a trick employed by Storm), social engineering, spear phishing and so on. While we still need to find vulnerabilities and

**Security needs to conform to and support your business priorities. Too often, vendors want your business to conform to their portfolio.**

patch them, we must understand that an organization is only as strong as its weakest link. And more attention needs to be paid in mitigating the other two ways beyond software.

**5. Compliance threatens security.** Compliance in and of itself is not a bad thing, but it does not equal security. At the very least it's a resource and budget conflict, and it splits our focus. Compliance is supposed to raise the minimum standard of security, but it just gets us to do what we are required to do and nothing else.

What's more, that which is easy to measure is not necessarily that which is most valuable. So if there were 15 software vulnerabilities last month, we can measure that 12 of them have been patched. It is much harder to measure how effective user training was to make administrators immune to social engineering attacks. The lesson is you need to be compliant, but your entire risk strategy cannot be based on it.

**6. Vendor blind spots allowed for Storm.** Storm is being copied and improved. The Storm era of botnets is alive and well, nearly two years from when it first appeared. There are three reasons why this is possible. First,

botnets thrive in the consumer world where there is little money for innovation, a fact Storm and its controllers know. They are making money off of everything from spam to pump-and-dump stock scams. Second, they eat antivirus for breakfast. A lot of the techniques and innovations used by Storm are not new; they are just being leveraged artfully against the blind spots of antivirus certifications and antivirus vendors. Third, malware does not need vulnerabilities. Most of the Storm recruitment drives have leveraged social engineering and play off of a holiday or sporting event.

**7. Security has grown well past “do it yourself.”** Technology without strategy is chaos. The security market is often far too focused on the latest hot box or technology. The sheer volume of security products and the rate of change has super-saturated most organizations and exceeded their ability to keep up. Organizations realize only a fraction of the capabilities of their existing investments. Furthermore, the cost of the product is often a fraction of the cost of ownership. There was a time when you could “do it yourself.” But the simple days of “virus meets antivirus” are long gone. Highly effective organizations are embracing professional and managed security services to extend and augment their in-house expertise. By focusing your in-house expertise on what you know best — your business — scale comes from teaming with third-party expertise. This will be increasingly necessary in these tough economic times.

The primary goals for executives over the next few years is to cut cost and reduce complexity. Today we are seeing a massive convergence in the security market. There are only going to be a few large players left and a bunch of smaller players. Will consolidation lead to better efficiency, or will it lead to vendor lock-in?

As executives simplify, they will face many choices. Simply reducing vendors may fail to balance cost, complexity and risk. Vendors have a responsibility in this equation and must rise to the challenge. True risk management can show where to prune solutions, but the key is risk driven, responsible simplification.

*Corman is principal security strategist for IBM Internet Security Systems.*

## Got great ideas?

■ Network World is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Editor in Chief John Dix (jdix@nww.com)

This vendor-written tech primer has been edited by Network World to eliminate product promotion, but readers should note it will likely favor the submitter's approach.



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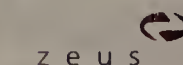
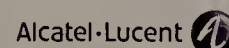


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## GEARHEAD

Mark Gibbs

# TiddlyWiki is amazing, fantastic!

**E**very now and then you stumble across a truly great idea and don't get it at first. Then you fall over the idea a second time and click! The light goes on. Such was my finding and re-finding of TiddlyWiki, a personal wiki system created by Jeremy Ruston.

I'm not sure why I didn't have that "aha!" moment when I first found this free, open source software. Given the insane number of products I

look at, it probably was a case of getting lost in the noise. That's a pity, because it turns out TiddlyWiki is an amazingly, perhaps insanely, great tool. In fact, I award TiddlyWiki 10 out of 5 — it's that cool.

While I'm sure all of you know what a wiki is, here's a good definition from the Wiki mother ship, Wikipedia: "A wiki is a page or collection of Web pages designed to enable anyone who accesses it to contribute or modify content, using a simplified markup language."

TiddlyWiki takes a more personal approach to wikis than most implementations because, rather than servicing a group of users, it provides a private, single-user wiki.

TiddlyWikis can be used in a number of ways, for example, as an elegant and low-cost method for creating, distributing and collaborating on documentation. Check out Reasoning Well, a TiddlyWiki that covers key concepts in the analysis of reasoning for philosophy students. You can use this TiddlyWiki online or download it — and that leads to a key attribute of TiddlyWikis: Once you have your own copy, you can annotate and add to it, making it your own content mashup.

Another interesting use for TiddlyWikis is as a tool for implementing a Getting Things Done (GTD) methodology.

If you haven't come across GTD, it's described by Wikipedia as "an action management method." If you have time- and task-management

problems, you might find value in the GTD approach, as legions of techies have. For example, take a look at 43Folders, essentially a fan site for GTD and time/process management.

A central requirement of GTD is a system for managing tasks, keeping research and capturing notes on the stuff you need to keep track of. Not surprisingly, the simplicity, elegance and portability of TiddlyWiki make it a compelling choice for GTD adherents.

TiddlyWiki is implemented as a single file (without content, its size is just 286KB) that combines JavaScript code, cascading-style-sheet definitions and the wiki content. This creates a discrete, versatile and highly portable package that runs on pretty much any modern browser on any operating system. You can store it on a USB drive, send it via e-mail, or use it from a Common Internet File System share that can be read only — or if you want to update the content, read and write.

TiddlyWikis are very popular although they are still a geek's solution to a lot of data management problems because they aren't really well documented for non-techies' purposes (although that shouldn't be hard to fix). But here's the opportunity: You can get even naive users comfortable with TiddlyWikis with minimal training — the concepts are quite simple and the user interface can be configured as you please.

TiddlyWiki is truly amazing, and you need to try it out. Let's get you started: Go to the TiddlyWiki download page. Then you have two choices: to save an empty version (a barebones copy of TiddlyWiki without content) locally or to create a free account on the TiddlySpot server that will host a private or public copy of your wiki.

Now this is where it gets interesting. Sorry, I've run out of space, so next week — you guessed it — more TiddlyWiki.

*Gibbs is all kinds of excited in Ventura, Calif. Get amped at gearhead@gibbs.com.*



Keith Shaw

## COOLTOOLS

# Octiv Air an impressive iPod streamer

**The scoop:** Octiv Air (M812), by Altec Lansing, about \$400 (basic set, additional speakers cost \$300).

**What it is:** The M812 base package of the Octiv Air wireless speaker system includes an iPod docking station that acts as a transmitter, and a stereo speaker (40 watts per channel, two channels) that acts as a receiver. In addition to the iPod slot, the docking station has an FM

radio receiver, as well as an auxiliary port for connecting non-iPod devices, such as a portable CD player or other MP3 player. You can add a second stereo speaker (about \$300 through the Altec Lansing Web site), then flip a switch for one to act as the "left" speaker, and the other as the "right" speaker. The docking station also can recharge the iPod.

The system uses proprietary 802.11-based wireless technology to stream the music from the base station to the speaker — Altec Lansing says it has a range of 100 feet. A remote control includes buttons for volume, mute, bass, treble, play/pause and next/last track, and six presets for the FM radio.

**Why it's cool:** The system is designed for users who want to separate the location of their iPod from the speaker portion — the tiny docking station can sit on a desk, but the speaker can be wall-mounted or placed higher up on a bookshelf, for example. In addition, the system can be expanded with extra speakers. The docking station supports audio streaming to as many as eight speakers. Only one song can be

streamed to the multiple speakers, however; unlike other multi-room systems, you can't play multiple songs to different rooms in the house.

I tested the system in the office, and the wireless range was very good. In two locations (separating the transmitter and the speaker by 75 feet and about 100 feet), I could connect the system wirelessly and hear the music without any delay. This included going through several office walls, so in most homes, the wireless range wouldn't be a problem.

**Some caveats:** The system doesn't officially support the iPhone, but in my tests I was able to stream audio from the iPhone to the wireless speaker. Unfortunately, the recharging capability doesn't apply to the iPhone; it works only with iPod models. I could still stream audio from such music services as Slacker and Pandora on my iPhone, but going over the 3G or Wi-Fi network would eventually drain the

battery (I prefer other speakers that also can recharge the iPhone's battery while using those services).

At \$400, the cost of the system may seem steep for the benefits of having a wireless streaming system. If being able to play music in one location and have the music emanate from another location appeals to you, this is a very impressive system and worth a look. In addition, this might be an affordable way (compared with more expensive multiroom systems, such as Sonos) to approach multi-room audio if you're not worried about playing multiple songs but just want the same song appearing everywhere.

**Grade:** ★★★★★ (out of five)



Altec Lansing's Octiv Air allows for the separation of the iPod from the speaker portion.

*Shaw can be reached at kshaw@nww.com.*



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# Hot spot horrors

Interviews with Wi-Fi users at airports and coffee shops reveal serious security lapses

BY JAMES E. GASKIN

Laptops are the main business tool for most mobile workers, and connecting those devices to the Internet via free public Wi-Fi hot spots has become common practice. So, how well do your mobile workers follow security guidelines for safe mobile computing?

To find out, we went directly to the source. We visited airports, restaurants and coffee shops and asked people about the security measures they were taking to protect their laptops.

We asked whether the laptop was personal property or provided by work; whether it was being used for personal or work projects; what kind of security training the users had been given; and other details about Wi-Fi use and general laptop safety. Because we tracked no personal details beyond the user's first names, people seemed open and fairly honest with their answers.

The results should scare any security professional. Many users have little idea which security features their laptop has, and only vague notions about safe computing practices. Before we get to the real horror stories, let's start with the users who exhibited the best Wi-Fi behavior.

## Timothy: B+

Every IT exec who has laptop users on the road would be happy to hold Timothy up as an example of smart laptop use. Sitting in the Los Angeles airport, plugging his laptop into his cell phone, Timothy did most of the right things to protect laptop safety.

"All the company field service engineers have to be A+ certified," says Timothy, a technician for a medical device manufacturer. "IT installs security software and we get occasional memos about safety, but we all understand security and are pretty careful."

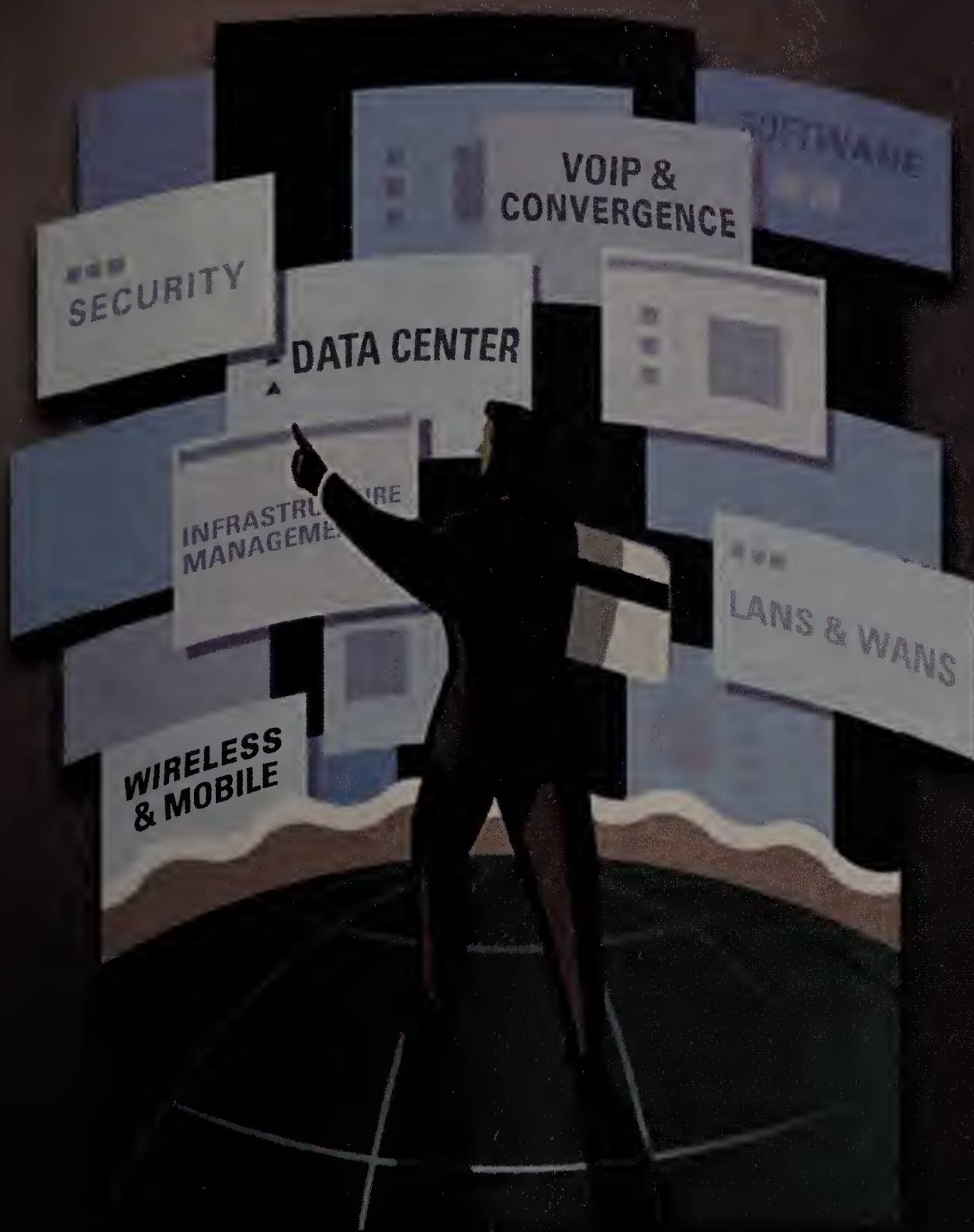
Because the Los Angeles airport doesn't offer free Wi-Fi, Timothy uses the Sprint cellular data network through his cell phone. When free Wi-Fi is available, such as in the Denver airport, for example, he takes advantage of it.

Checking his company e-mail, Timothy says he has access to a VPN for connecting to the company network, but wasn't using it at the time. His employer provided the Dell Latitude D520 running Microsoft Windows XP, but Timothy admitted using it for personal business as well.

Timothy's laptop had a password that appeared before Windows loaded. He wasn't sure if that was for a system-level password or a full disk encryption product.

See Hot spot, page 26





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## Kurt: B-

Then there's Kurt, CFO for a regional restaurant chain. Kurt loves free Wi-Fi if he can get it, and refuses to consider paying for any type of cellular data network plan for himself or any of his users. "If I can get by with free Wi-Fi as much as I travel, so can everyone else," he says.

Sitting in the Dallas/Fort Worth airport, Kurt was buying a single day pass for T-Mobile Wi-Fi access. His Dell Latitude 630, company equipment, was running Windows XP.

"We use a BlackBerry or a smartphone for our e-mail, so laptop connections aren't that critical," Kurt says. He does use his company laptop for personal projects, but answered with an emphatic "no" when asked about online banking over public Wi-Fi. "I can start a VPN to our company accounting server if I need to, but that's all the connections I have to work," he says.

Kurt's refusal to consider using a cellular data network from one of the major cell phone providers may be an example of a "looks good but smells bad" business decision. When users search for free Wi-Fi networks, they open themselves to a variety of interception hacking techniques, particularly if they connect to an ad hoc network by accident.

Buying a couple of T-Mobile day passes and paying for three nights of hotel Internet access during a month will cost Kurt the same amount as the monthly cellular data network fee. Users spending \$60 on laptop connections per month will benefit from a cellular data network's flat and predictable pricing models, and be at least a bit more secure than searching for an open public Wi-Fi network.



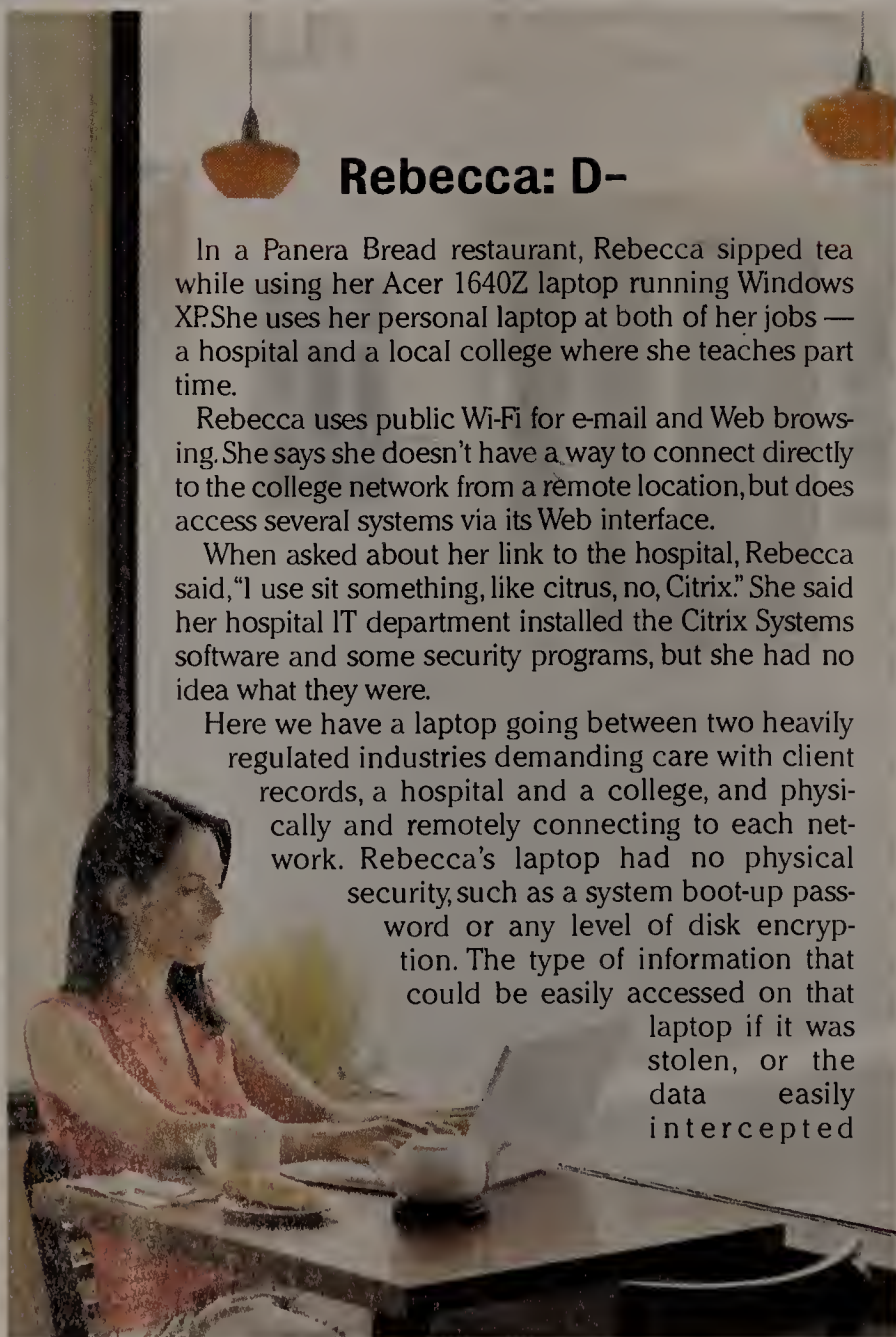
## Rebecca: D-

In a Panera Bread restaurant, Rebecca sipped tea while using her Acer 1640Z laptop running Windows XP. She uses her personal laptop at both of her jobs — a hospital and a local college where she teaches part time.

Rebecca uses public Wi-Fi for e-mail and Web browsing. She says she doesn't have a way to connect directly to the college network from a remote location, but does access several systems via its Web interface.

When asked about her link to the hospital, Rebecca said, "I use something, like Citrix, no, Citrix." She said her hospital IT department installed the Citrix Systems software and some security programs, but she had no idea what they were.

Here we have a laptop going between two heavily regulated industries demanding care with client records, a hospital and a college, and physically and remotely connecting to each network. Rebecca's laptop had no physical security, such as a system boot-up password or any level of disk encryption. The type of information that could be easily accessed on that laptop if it was stolen, or the data easily intercepted



## 5 Wi-Fi security tips

1. Always use a personal firewall and up-to-date security software.
2. Avoid all open access, ad hoc Wi-Fi networks.
3. When using public Wi-Fi, use your corporate VPN for any link back to your company.
4. Make sure all your traffic is individually encrypted. Don't use regular POP3, IMAP or SMTP for e-mails, but use POP3 over SSL (POP3S), IMAP over SSL (IMAPS) and SMTP over SSL (SMTPS/SMTPTLS).
5. Cellular data networks provide a slightly higher technical barrier than Wi-Fi for snooping, but still use your firewall and other precautions.

SOURCE: JESPER JURGENOKS, CTO OF NETVIGILANCE, WHICH MAKES NETWORK VULNERABILITY TESTING SOFTWARE

## Brad: D

Then there's Brad. He proudly showed off his 9-month-old Dell E1405 laptop running Windows XP as he sat in a Panera Bread restaurant and used its public Wi-Fi. He bought the computer himself, but also uses it as his main computer at the church he works for. That means everything he does with his laptop at Panera Bread goes with him to the office and plugs directly into his office network.

"I do everything on my laptop," Brad says. "E-mail, blogs, Web research, check my bank accounts online, both personal and for the church." He may have realized the security implications of that statement when he later said he never lets his browser save user name and password for Web sites he visits.

See Hot spot, page 28





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## Jay: C

Jay used his older MacBook running OS X 10.5 to read e-mails while sitting at the Cafe Express restaurant in Dallas, a busy Wi-Fi hot spot. A self-employed musician and event planner, he doesn't worry much about security problems with public Wi-Fi because, "It's a Mac."

Officially a work computer, Jay uses the device for all personal and work activities whenever he leaves his home office.

To prove he was worried about the loss of his laptop, Jay offered to show us the Kensington laptop lock he had in his computer bag. Unfortunately for Jay, the bag actually contained two spare audio equipment RCA cables. But Jay deserves points for being more concerned about physical laptop safety than anyone else we met.



## How to travel safely with a laptop

1. Use a laptop label service or laptop tracking service, or both.
2. When using public transportation, always keep your laptop on your lap. In 2005, more than 4,400 laptops were left in taxis in the city of Chicago alone.
3. Don't use laptop bags with big logos screaming "expensive laptop inside."
4. To avoid seeing data from your lost laptop appear on CNN, use full disk encryption.

SOURCE: KIM BRAND, CO-FOUNDER OF LAPTOP SAFETY SEMINARS

## Lessons learned

Summing up, laptop users we interviewed seem unconcerned about security when using public Wi-Fi networks. Those who have work laptops still use them for personal business, and those who use personal laptops for work take few security precautions.

No one volunteered that they used a firewall, although a few knew they had one when asked. No one understood the amount of casual and targeted Wi-Fi hacking that could have been applied to their communications during our conversation.

Because the majority of data breaches reported in the news start with some type of lost laptop, we expected to hear several people tell us about full disk encryption on their laptops. None did, although Timothy may have full disk encryption and not know it. None used any type of data folder encryption, either.

None of the laptop users we interviewed used any type of laptop labeling or tracking service to greatly increase the chances of recovering a lost laptop. Because nearly 12,000 laptops are lost or stolen at U.S. airports each week, the chances are good a regular traveler will lose a laptop before long. (Read a related story about 10 of the worst moments in network-security history at [www.nwdocfinder.com/8435](http://www.nwdocfinder.com/8435).)

Label tracking services affix a permanent label to laptops with a unique ID and a toll-free number and URL. When someone finds a lost laptop, the service arranges to ship the laptop back to the owner, and rewards the finder. With business laptops still in the \$1,000 to \$1,500 price range, getting laptops back can save some serious money.

Tracking services also help return laptops, but focus on those grabbed by thieves. Hidden software "phones home" whenever the laptop connects to a network to report its location. When a laptop is reported stolen, the tracking service pinpoints its location and informs the owner, local police or both. The market leader in this area, Absolute Software, claims to have returned more than 5,000 stolen laptops, including more than 200 in one week in 2007.



### Slide show: Top 10 laptop safety tips

How to protect yourself when using public Wi-Fi

[www.nwdocfinder.com/8529](http://www.nwdocfinder.com/8529)

## Preaching abstinence

As part of our research, we spoke with John, a security manager at a major financial-services institution (names concealed for security) and asked about his rules for company-supplied laptops. They're the harshest we've seen, and would certainly surprise the laptop users we interviewed.

"No public Wi-Fi, ever," John says. "We use only cellular data networks for that extra bit of security. We block the USB ports on the laptops, and block the CD-DVD drives. If you can load a program, you can get infected. When your laptop gets infected, you bring that infection to work."

At a Starbucks, we found a user who subscribed to John's abstinence theory. He was using his personal, older-model Gateway laptop. "I never use wireless anywhere," he says. "Not at home, not at work, and certainly not in public," he said as he plugged his power cord into the wall.

Of course, there's a middle ground between using public Wi-Fi promiscuously and going the abstinence route. Users can practice safe surfing by following accepted best practices that include firewalls, encryption, VPNs and physical security measures to protect data in the event that a laptop is stolen or lost.

*Gaskin is an author, consultant and speaker on technology for small business. He can be reached at [james@gaskin.com](mailto:james@gaskin.com).*



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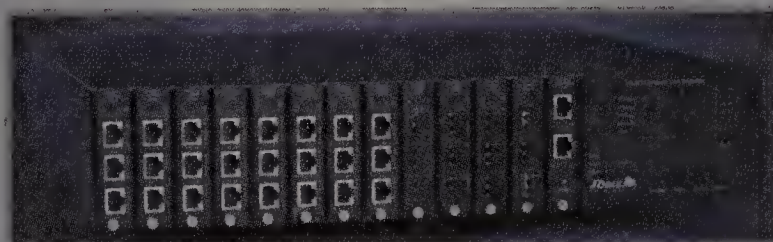
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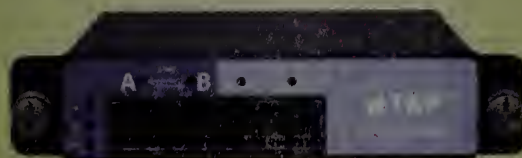
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## South Carolina

continued from page 14

its original purpose because new modes of distance learning now are offered over IP-based broadband networks.

It's prime spectrum real estate, in part because Sprint Nextel and Clearwire have combined forces to buy or lease this spectrum to roll out their joint WiMAX 4G network. The early results, in Baltimore for example, are impressive: multi-gigabit uploads and downloads even by mobile users. In mid-2008, the WiMAX Forum had begun certifying an array of Mobile WiMAX products to access networks in this band.

South Carolina nevertheless faces an array of challenges. The Sprint-Clearwire merger also ended a rivalry that might have led to a bidding war for the spectrum. And the nation's economic meltdown is likely to lower what companies are willing or able to pay for it.

Finally, the whole process could spark a bruising and time-consuming political battle over different visions of how government and industry should partner on a range of broadband policy issues, from contract details, to service-level agreements, to bridging what's called the digital divide between well-heeled broadband users and the poor.

## The state's wireless asset

The EBS licenses are owned by the South Carolina Educational Television Network (ETV), a nonprofit that also runs 11 television stations and eight radio stations. After the FCC rules changes for this class of licenses, ETV began exploring options to lease the excess capacity. The state legislature created its own exploration committee in 2007, eventually passing a bill to create in late May 2008 the Educational Broadband Service Commission, charged with developing a competitive process for leasing spectrum assets. Six months later, the RFP was ready.

The commission deliberately cast a wide net with the RFP, says its chairman, Gary Pennington, whose day job is as managing partner of his Columbia-based law firm. "We were very clear [that] we did not want to pigeonhole the particular use of the spectrum," he says. "We've left that wide open."

The RFP is being promoted via SpecEx.com, which is billed as the first fully online, fully automated exchange for buying, selling and leasing spectrum licensed by the FCC. The site was launched last fall by start-up Spectrum Bridge, in Lake Mary, Fla.

## Changing the spectrum landscape

EBS licenses are held by such entities as universities, schools and churches. The concept dates from 1963, when microwave spectrum was set aside to send closed-circuit TV broadcasts to multiple campuses or classrooms, says Charles Spann, wireless business analyst with Connected Nation, a Washington, D.C. nonprofit that facilitates public-private joint efforts to

extend broadband reach and access.

There are now 20 education-held channels and another 13 related commercial channels in this spectrum, according to Spann. The commercial users, including such companies as People's Choice Television, were Wall Street darlings during the 1980s and 1990s, offering wireless analog TV services, until digital signals and satellite TV services scuppered them.

Under the FCC rules changes, this entire spectrum now is available to be leased for any number of uses and for wireless technologies including WiMAX and Long Term Evolution.

The South Carolina EBS licenses constitute a "huge amount of spectrum," Spann says. "That allows nearly ubiquitous coverage over the state, and enough cumulative spectrum to build a business plan around." If Clearwire, for example, was successful only in buying or leasing the commercial 2.5GHz channels, "it might not have enough to go into big markets and provide a WiMAX play that would satisfy the needs of a large population," he says. "But add 20 more [EBS] channels, and you've gone from not having enough to having more than you need." Under the current FCC rules, the leasers are given wide latitude in the kind of technology and services they can offer in that band.

What South Carolina is attempting has been done in Milwaukee on a much smaller scale. There, Clearwire a year ago began offering WiMAX services based on 12 broadcast channels it leased from the University of Wisconsin-Milwaukee, Milwaukee Area Technical College and Milwaukee Public Schools. The company paid each institution \$4.17 million upfront and \$55,000 per month. Each year, the monthly payment will increase by 3%. The lease is for 30 years, with a renewal or cancellation option for Clearwire every 10 years.

## A missed chance?

Spann wonders, however, whether South Carolina has missed its best chance for an optimal deal. Because of the economic meltdown, coupled with the Sprint-Clearwire WiMAX merger, the price-per-megahertz-pop on a national average has plummeted from a

high of about 50 cents to fewer than 4 cents today. That drop slices hundreds of thousands, even millions from the lease deals.

The other uncertainty is how advocates, special interests and the state legislature will respond once the deadline for the RFP passes at 5 pm EST on Feb. 16. The specter of an imminent decision could be crystallizing efforts to make major changes to the process as it stands.

"Unfortunately, the [Educational Broadband Service Commission] has defined its role in rather narrow terms — to auction off ETV's excess spectrum," said Jabrari Simama, vice president of community development and executive assistant to the president at Columbia's Benedict College, writing in a Jan. 21 op-ed column in "The State," one of South Carolina's biggest newspapers.

## Taking sides in the wireless debate

Simama is no stranger to the issues involved or to the politics of technology. He's the director of the Broadband in Cities and Towns Conference held annually in Columbia, and the former telecommunications officer for the city of Atlanta who co-wrote the city's 2002 wireless RFP. "[The commission] must realize the great trust that has been vested in it to protect and serve the public good," he wrote in the op-ed. "It would be a serious mistake to view its job merely as an auctioneer of the public's spectrum, identifying the highest bidder and nothing more."

Simama's list of other considerations is long, and potentially politically combustible. He advocates among other things "provisions for local and minority participation" to create jobs and promote diversity, and dedicating a percentage of lease revenues to creating an endowment "devoted to eliminating the digital divide and ensuring that broadband is available to every citizen in the state."

After this month's deadline for RFPs, the commission will evaluate them based on the guidelines and requirements mandated by the law creating it. The commission will then make a recommendation to the state's Joint Bond Review Committee. ■

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## Editorial Index

<b>A</b>		
Absolute Software	28	
Acer	26	
Altec Lansing	22	
Alteva	15	
Alvarion	7	
Amazon.com	18	
Apple	8, 22, 28	
AT&T	1, 8, 16	
Avaya	12	
<b>B</b>		
Barracuda Networks	8	
BitTorrent	7	
Boost Worldwide	8	
<b>C</b>		
Cisco	1, 7, 18	
Citrix Systems	18, 26	
Clearwire	30	
CryptoMill Technologies	10	
<b>D</b>		
David Allen & Co.	22	
Defensio	7	
Dell	10, 18, 24	
<b>F</b>		
F5 Networks	12	
Farionics	34	
Fujitsu	10	
<b>G</b>		
Google	3, 7, 18	
<b>H</b>		
Hitachi	10	
HP	1, 6	
<b>I</b>		
IBM	8, 18	
InMon Corp.	12	
Intel	12	
<b>J</b>		
Juniper Networks	7	
<b>L</b>		
LG Electronics	16	

## Advertiser Index

Advertiser	Page #	URL
1&1 Internet AG	9, 11, 13	www.1and1.com
DNSstuff	31	DNSstuff.com
dtSearch Corp	29	www.dtsearch.com
Fasthosts	23	www.fasthosts.com
Logitech Inc	17	www.networkworld.com/Logitech
Microsoft Corp	2	SQLServerEnergy.com
NEC Corp	36	www.necus.com/dynamic
Network Instruments LLC	29	www.networkTAPs.com

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<b>M</b>		
McAfee	10, 12, 18	
MetroPCS Wireless	8	
Microsoft	6, 8, 12, 18, 24	
MX Logic	3	
<b>N</b>		
NetVigilance	26	
Nortel	7	
<b>O</b>		
Openwave Systems	18	
<b>P</b>		
Panda Security	3	
Pandora Media	22	
Polycorn	15	
<b>R</b>		
Research In Motion	1, 8, 16, 26	
Riverbed Technology	12	
<b>S</b>		
Seagate Technology	10	
Sentilla	7	
Seven Networks	18	
Slacker	22	
Sonos	22	
Spectrum Bridge	14	
Sprint Nextel	8, 24, 30	
Sun	18	
<b>T</b>		
Telanetix	15	
T-Mobile	8, 26	
Trend Micro	3	
Trusted Computing Group	10	
<b>V</b>		
Verizon	1, 8, 16	
VMOps	18	
Voltage Security	10	
<b>W</b>		
Wave Systems	10	
Websense	7	
WinMagic Data Security	10	
<b>Y</b>		
Yosemite Technologies	8	

Network Technologies Inc	29	
www.networktechinc.com/nw2.html		
Qwest Communications	35	qwest.com/whyqwest
Shore Microsystems	29	www.shoremicro.com
SunGard	27	www.availability.sungard.com
Trend Micro Inc	5	trendmicro.com/thinkagain

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## BACKSPIN

Mark Gibbs

# Mr. Gibbs, I am now in control

**F**irst this week I wanted to correct something I wrote last week: I discussed the technique of “freezing” PCs to prevent malware changes and mentioned a previous version of Faronics’ Deep Freeze had been hacked. The current version, which has been out for four years, has not been hacked. Faronics also has an enterprise version.

So, where was I? Oh yes, talking about malware. The reader feedback continues to ...

*Zdravstvuyte! So, my friend, you thought you were going to be reading the Backspin column. Ha! You read about Gibbs’ malware problems in Gearhead and Backspin, da? And you read about how he got rid of his little problem? Well, not so fast, Mister Gibbs! As you Americans say ‘All your base are belong to us!’*

*Mister Gibbs should know there really is no substitute for the ‘nuclear’ option (you Americans are so amusing with your catch phrases and ‘sound bytes’). Like we say in my country, ‘As you make your bed, so you will sleep.’ Well, I think Mr. Gibbs is maybe not sleeping too well.*

*Now it is time to introduce myself. I am Vladimir — Vlad to my friends — but to Mr. Gibbs I am Mr. Vlad, and he owes me money. Yes, for his mistake of not cleaning out my little friend completely, I will, as we say in my country, ‘Pokazát, gde ráki zimúyut’ (literally ‘have to show where the lobsters spend winter’ — it means punish, but we have a lobster thing). Let me tell you a little story about how this works.*

*In the three-ninth kingdom (‘V tridevyátom tsárstve,’ which is like your ‘once upon a time’), my little friend got into Gibbs’ computer from one of the Web sites he visited or from some ‘interesting’ piece of software he installed.*

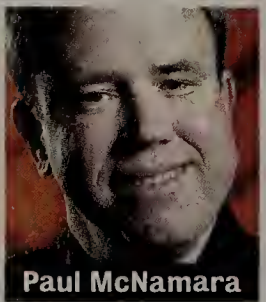
*There are other ways as well, but we need not discuss how they work, but I will tell I have zero-day exploit I purchase off my friend Yuri that it is better to remain my little secret (this cost me a hundred thousand credit cards, which was a lot, but what I got from Heartland Credit Systems was much greater ... so what if Yuri was overpaid, he will remember that I am generous when he finds the next great exploit).*

*Now my little friend is busy. He is sending me everything from Mr. Gibbs’ hard drive. I could clean out Gibbs’ bank account but what fun would that be? His bank would simply cover the loss. No, much better to just hold Gibbs’ computer hostage. He is now seeing a pop-up that says the following: ‘My dear Mr. Gibbs, I could clean out your bank account. I could send porn to all your friends so it looks like you sent it. I could do anything I want. But this is your lucky day. You will have noticed by now that you cannot access your files. All I want you to do is pay me \$10 a month and I will let you have access. Just send me a message at vladimiryourbase@gmail.com confirming you will pay within 24 hours, and your files will be made available. If you fail to confirm, if you run any kind of malware removal tool, if you attempt to make any system changes your hard disk will be wiped clean.’*

*Why do I do this? Because I can. I have lots of money and keeping an army of zombies that each drip a little money my way is better than making — how do you say it? — too many wave. I have more than 5,000 people doing this, so it is good business. Da?*

*Maybe I will be on your PC next. Will you ever get rid of me? As we say, ‘Kogdá rak na goré svístnet’ — when the lobster will whistle on the mountain.’ Or as you say, ‘when pigs fly.’ Have a nice day, or as we say, Do svidaniya! (‘Till the next meeting.’)*

Vlad isn’t in Ventura, Calif. You can send him your thoughts at vladimiryourbase@gmail.com. Gibbs is still at backspin@gibbs.com.



Paul McNamara

## NETBUZZ

News, Insights, oddities

# College student wins free-speech spat

**N**ews arrived last week via the Electronic Frontier Foundation that Michigan State University had dropped disciplinary action against a student who had been accused of spamming and network abuse because she sent e-mail about a controversial campus matter to 391 faculty members.

That justice prevailed seems obvious from afar, but it had me wondering if the situation would have been far stickier in a slightly different setting. I’ll get to that in a moment.

The university initially argued that the student, Kara Spencer, had violated acceptable-use policy by failing to gain prior permission for her e-mail, which reached about 8% of the MSU faculty (any amount above 30 messages triggered the provision). EFF called that restriction unconstitutional and was preparing to file legal action.

EFF states: “We’re pleased that MSU has reversed course and will not only drop the charge against Ms. Spencer, but will reconsider its flawed policies,” said EFF Legal Director Cindy Cohn. “When a school’s anti-spam policy requires students to get approval before they discuss school policy with school officials, it has plainly left the realm of protecting against spam and has violated the Constitution.”

Score one for the First Amendment. However, the thought did occur to me: Would the issue be viewed any differently — by the law or civil libertarians — had this been a private university instead of a state (read: government-run) one?

I asked Cohn via e-mail. Her reply: “It would have been a more complicated analysis but I don’t know that it would necessarily have meant that the policy was OK either.”

I agree that the distinction would not make the policy OK — as in reasonable, prudent or fair — but I do believe the legal case would be

significantly more difficult, if not altogether untenable.

Surely there is little doubt that a private employer can place restrictions on the use of e-mail that would have made Spencer’s 391-piece delivery a violation of company policy subject to disciplinary action.

Now make the jump from private employer to private university: Is it really that much of a leap?

## How many phones do you have?

Slashdot last week was asking in one of its polls: “How many phones do you have? Count wired phone extensions, cell phones, smartphones, and installed VoIP apps on all computers that you use regularly.”

Unscientific, to be sure, but at last look more than 26,000 Slashdotters had answered. I was surprised to find that my total of five phones was above the poll’s most popular answer of two to four (51%). I had figured that the Slashdot crowd would be good for a boatload of phones, but now I’m thinking this probably reflects the number of people rejecting land lines altogether.

A colleague saw my Buzzblog post about the poll and offered this personal anecdote: “I slinked into and out of Target last week with a new landline phone. I failed in my bid to have our household go cell-phone only.”

Left unspoken was that he wasn’t the decider.

Nevertheless, I encounter more people all the time who have cut the cord, including my brother and his wife. Twenty-seven percent in the Slashdot poll reported owning only a single phone, presumably the vast majority being of the mobile variety.

As for the 1% or so who reported having 15 or more phones, only one word comes to mind: fetish.

*I’ve always had something of a fetish about answering my e-mail, so don’t be afraid to give me a try. The address is buzz@nw.com.*



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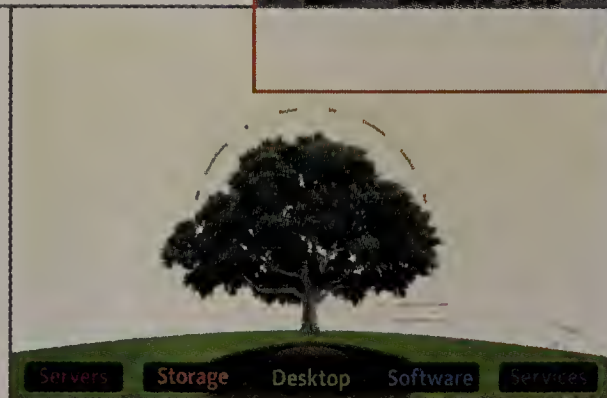


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